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Willingness to Sacrifice in Close Relationships

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The authors advance an interdependence analysis of willingness to sacrifice. Support for model predictions was revealed in 6 studies (3 cross-sectional survey studies, 1 simulation experiment, 2 longitudinal studies) that used a novel self-report measure and a behavioral measure of willingness to sacrifice. Willingness to sacrifice was associated with strong commitment, high satisfaction, poor alternatives, and high investments; feelings of commitment largely mediated the associations of these variables with willingness to sacrifice. Moreover, willingness to sacrifice was associated with superior couple functioning, operationalized in terms of level of dyadic adjustment and probability of couple persistence. In predicting adjustment, willingness to sacrifice accounted for significant variance beyond commitment, partially mediating the link between commitment and adjustment; such mediation was not significant for persistence.

Sometimes it is easy for close partners to coordinate their behavior in such a manner as to achieve good outcomes—when two individuals' interests align, achievement of desirable outcomes is a relatively simple matter. Unfortunately, partners' interests sometimes are at odds—what is good for one partner is not good for the other. When partners' preferences do not correspond, one or both individuals may find it necessary or desirable to sacrifice their needs for their partner's needs. How do individuals resolve the conflict between that which is best for them and that which is best for their partner or relationship? What makes individuals willing to sacrifice, and is this willingness associated with healthy couple functioning?

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The answers to such questions are indirect at best. Some researchers have addressed the phenomenon of sacrifice in the context of nonclose relationships, for example, studies of organizational behavior, experimental games, or justice phenomena (e.g., Baefsky & Berger, 1974; MacCrimmon & Messick, 1976; Meyer, Allen, & Gellatly, 1990; Schwartz, 1975). Also, several theoretical accounts of behavior in close relationships suggest that sacrifice may be a determinant of healthy couple functioning (e.g., Berscheid, 1985; Clark & Mills, 1979; Holmes & Boon, 1990). However, remarkably little empirical attention has been directed toward understanding the determinants and consequences of willingness to sacrifice in ongoing, close relationships.

In this article, we adopt an interdependence analysis of willingness to sacrifice (Kelley & Thibaut, 1978), proposing that situations of conflicting interest are potentially disruptive to the health and vitality of a relationship. To deal with such situations requires some inclination toward prorelationship transformation of motivation, yielding increased willingness to sacrifice. Through the model advanced in this article, we identify several features of interdependence that should increase willingness to sacrifice and yield enhanced couple functioning. On the basis of this reasoning, several hypotheses regarding the determinants and consequences of willingness to sacrifice are advanced and tested.

An Interdependence Analysis of Willingness to Sacrifice

Dictionary definitions of *sacrifice* include the following: "giving up one thing for another," "surrender to gain some other object," "devote with loss," or "foregoing something valued for the sake of something having a more pressing claim" (Webster's New School & Office Dictionary, 1960, p. 640; Guralnik, 1970, p. 1252). In the context of ongoing, close relation-

ships, *willingness to sacrifice* is defined as the propensity to forego immediate self-interest to promote the well-being of a partner or relationship. Sacrifice may entail the forfeiting of behaviors that might otherwise be desirable (i.e., *passive sacrifice*), enacting of behaviors that might otherwise be undesirable (i.e., *active sacrifice*), or both. Such experiences may take a variety of forms, varying from transient, situation-specific, and often minor sacrifices (e.g., attend a play your partner wants to see) to more substantial, extended ones (e.g., agree to live in an undesirable locale for your partner's career).

Under what circumstances is sacrifice called for? What is it about the structure of interdependence that makes it necessary to give up one thing for another? Interdependence theory suggests that individuals are forced to choose between self-interest and sacrifice in situations involving *noncorrespondence* (Kelley & Thibaut, 1978). *Correspondence of outcomes* is defined as the degree to which partners' preferences for various activities (i.e., combinations of one's own behavior and partner's behavior) correspond or conflict. Noncorrespondent situations resemble social dilemmas: Collective interest is better served if partners engage in prorelationship behavior than if they behave selfishly; at the same time, the individual's immediate, personal interests would be better served by acting selfishly (cf. Dawes, 1980; Messick & Brewer, 1983). Noncorrespondence is quite common in ongoing relationships (cf. Gottman, 1994; Holmes, 1989; Kelley et al., 1983; Surra & Longstreth, 1990) and is potentially disruptive for a variety of reasons—partners may expend energy in attempting to resolve conflicts of interest, become annoyed at one another's different preferences, feel betrayed in situations where one or both partners ignore the other's welfare in the pursuit of self-interest, or dissolve the relationship. Thus, noncorrespondence is an important challenge to the well-being of a relationship. Sacrifice represents one important mechanism by which individuals can solve dilemmas involving noncorrespondent outcomes.

Given that acts of sacrifice may involve negative consequences, such as opportunity costs or effort expenditure, it is important to distinguish between the concepts of sacrifice and cost. Whereas sacrifice refers to behavior (i.e., behavior that departs from direct self-interest), cost refers to psychological experience (i.e., feeling that an event is unpleasant). A variety of events may be experienced as costly, but many such events do not involve acts of sacrifice. For example, the experience of cost may have its origins in a partner's behavior (e.g., he insults her haircut), broader traits or attributes (e.g., he is a careless driver), or experiences external to the relationship (e.g., mutual friends do not get along). In contrast, sacrifice refers to the individual's own forfeiting of self-interest. Moreover, acts of sacrifice may or may not be consciously experienced as costly and may or may not be described as distasteful. Indeed, to forfeit self-interest "without grudge" is a very generous form of sacrifice. Thus, whereas the concept of cost is inherently linked to the experience of dissatisfaction, acts of sacrifice are intended to further *positive goals*—to promote the well-being of a partner or relationship. It is interesting that, in measuring costs, researchers have tended to use broadly defined variables and measures that may have tapped costs, sacrifice, or both. This may explain why measures of costs have been shown to exhibit negative, positive, or no links with relationship functioning (e.g., Hays, 1985; Rusbult, 1983).

Clearly, acts of sacrifice involve departures from the individual's underlying, a priori, self-interested preferences, termed *given preferences*. The means by which individuals depart from given preferences is termed *transformation of motivation*—a process that may lead individuals to relinquish immediate self-interest and act based on broader goals (Kelley & Thibaut, 1978). That is, individuals may take broader considerations into account, such as a partner's interests or one's desire to maintain a long-term relationship. (Of course, such considerations are not always positive; individuals may sometimes seek to harm their partners or relationships.) Transformation of motivation yields a reconceptualized, effective constellation of preferences, which are assumed to directly guide overt behavior.

Determinants of Willingness to Sacrifice: Role of Commitment Level

We assume that specific, noncorrespondent situations initially are experienced as unique problems to be solved. The transformation process through which individuals resolve novel dilemmas may involve conscious thought; for example, individuals may consider the available options, interpret the situation in light of surrounding circumstances, review feelings for a partner and goals for a relationship, and decide whether to behave selfishly or to sacrifice. Alternatively, the transformation process may involve little conscious thought; for example, individuals may impulsively act based on the prevailing emotional tone accompanying an interaction. In either event, the unique problem has been dealt with, and experience has been acquired.

Over time in a relationship, specific problems of noncorrespondence are encountered with regularity, and a relatively stable orientation to such situations may develop. Through the process of adaptation to repeatedly encountered patterns of interdependence, individuals develop habitual tendencies to react to specific patterns in specific ways, such that the transformation process occurs quite rapidly, with little or no conscious thought. Of course, at critical choice points, individuals may continue to engage in transformation-relevant information seeking and rational decision making; but, just as often, transformation of motivation may be guided by habitual tendencies. In some relationships, partners may routinely engage in prorelationship transformation; whereas, in other relationships, partners may typically behave selfishly. According to Holmes (1981), such stable transformational tendencies are guided by relatively enduring, relationship-specific motives.

We suggest that commitment is a central motive in ongoing relationships and propose that feelings of commitment promote prorelationship transformation and willingness to sacrifice. *Commitment* represents the degree to which an individual experiences long-term orientation toward a relationship, including intent to persist through both "good and lean times," feelings of psychological attachment, and implicit recognition that one "needs" a relationship. From interdependence theory (Kelley & Thibaut, 1978; Thibaut & Kelley, 1959), commitment is argued to emerge out of the specific circumstances of interdependence that characterize a given relationship. In particular, commitment is argued to develop as a consequence of increasing dependence as a result of an (a) increase in *satisfaction level* (i.e., the relationship gratifies important needs, such as the needs for intimacy or security) and (b) decline in *quality of alternatives*

(i.e., specific alternative partners, field of eligibles, or noninvolvement are relatively unattractive). The investment model extends interdependence assertions, hypothesizing that commitment is further strengthened as a consequence of (c) increasing *investment size* (i.e., resources, such as personal identity, effort, or material possessions, are linked to a relationship; Rusbult, 1980, 1983). Commitment is an emergent property of dependence, reflecting more than the sum of the components out of which it arises (e.g., dependence per se does not necessarily induce psychological attachment). Consistent with these claims, numerous studies demonstrate that satisfaction level, quality of alternatives, and investment size contribute unique variance to predict commitment; moreover, commitment is the strongest predictor of persistence in a relationship, accounting for significant variance above and beyond satisfaction, alternatives, and investments (e.g., Drigotas & Rusbult, 1992; Felmlee, Sprecher, & Bassin, 1990; Lund, 1985; Rusbult, 1983; Rusbult, Johnson, & Morrow, 1986; Simpson, 1987).

Why should strong commitment promote willingness to sacrifice? We suggest four lines of reasoning in support of this prediction, identifying several interrelated mechanisms that might—individually or in combination—account for such an association. (Indeed, we suspect that, in the context of ongoing relationships, several mechanisms are unlikely to occur independent of one another; that is, in ongoing relationships, two or more of the mechanisms may operate in concert.)

First, committed individuals (i.e., committed to a relationship) are dependent on their partners and need their relationships (e.g., John's relationship provides him with desirable outcomes, he has invested a great deal in his relationship, and his alternatives are not good). Because committed individuals need their relationships, they should be more willing to sacrifice direct self-interest to sustain their relationships—the more you have to lose, the more you are willing to give up; to hold on to what you have.

Second, commitment involves long-term orientation; committed individuals look beyond the here and now, considering not only the current noncorrespondence problem but also anticipating future noncorrespondent situations. In a short-term involvement, individuals may achieve relatively good outcomes by behaving in accordance with immediate self-interest. In contrast, in long-term involvements, it behooves partners to develop patterns of reciprocal cooperation (e.g., John's long-term well-being is enhanced if he sacrifices today so that Mary will sacrifice next week). Thus, acts of sacrifice may represent a conscious or unconscious means to maximize long-term self-interest (cf. Axelrod, 1984). Moreover, long-term orientation may serve to "smooth the bumps," in that any undesirable outcomes that result from acts of sacrifice are aggregated (a) over a longer time perspective and (b) in light of the partner's reciprocal sacrifice (cf. Kelley, 1983).

Third, given that commitment involves psychological attachment to a partner, the person and his or her partner may become linked, to the extent that a departure from self-interest that benefits one's partner may not be experienced as a departure from self-interest (cf. Aron & Aron, 1986). For example, in John's mind, something good for Mary may be inseparable from something good for himself. Thus, committed individuals may engage in behaviors that they would otherwise find undesirable because it makes their partner feel good and accordingly makes them feel good.

Fourth, strong commitment may bring with it a collectivistic, communal orientation, including tendencies to respond to a partner's needs in a rather unconditional manner. Indeed, commitment is associated with tendencies to describe one's relationship in a relatively collectivistic, pluralistic manner (e.g., *we, us, our* rather than *I, me, mine;* Agnew, Van Lange, Rusbult, & Langston, 1996). In a highly committed, communally oriented relationship, partners may be willing to exert effort or endure cost, without counting what they receive in return or calculating whether their acts will be reciprocated (cf. Clark & Mills, 1979). In noncorrespondent situations, communal orientation could enhance the probability of sacrifice rather than the pursuit of self-interest (John is likely to sacrifice his direct self-interest simply because Mary needs him to).

Thus, several lines of reasoning support the hypothesis that strong commitment may be associated with prorelationship transformation of motivation and enhanced willingness to sacrifice. Indeed, existing research provides indirect support for this supposition, in that commitment is shown to be associated with prorelationship behaviors, such as derogation of tempting alternatives (e.g., Johnson & Rusbult, 1989; Simpson, Gangestad, & Lerma, 1990) and willingness to accommodate rather than retaliate when a partner behaves poorly (e.g., Rusbult, Bissonnette, Arriaga, & Cox, in press; Rusbult, Verette, Whitney, Slovik, & Lipkus, 1991).

Consequences of Willingness to Sacrifice: Links With Quality of Couple Functioning

As noted earlier, noncorrespondent situations are potentially disruptive for a variety of reasons. Such interdependence dilemmas are complex and may arouse negative emotions, such as anger or insecurity, and partners may respond to persistent noncorrespondence by avoiding or terminating a relationship. Moreover, we have suggested that acts of sacrifice may involve negative consequences, such as opportunity costs or effort expenditure. In light of the negative features of dilemmas that call for sacrificial behavior, it is not implausible that individuals might experience considerable ambivalence about self-sacrifice and that high levels of sacrifice might be indicative of poor couple functioning. Indeed, relationships may be strained by the existence of numerous or extreme noncorrespondent dilemmas, and the necessity of frequent or excessive acts of sacrifice may take their toll on long-term partners.

Nevertheless, our analysis suggests that willingness to sacrifice exhibits positive links with healthy *couple functioning,* operationally defined as the level of dyadic adjustment and probability of a person persisting in a relationship. How and why might acts of sacrifice bring about enhanced couple functioning? At least four complementary mechanisms seem plausible—none of which necessarily assume conscious intent on the part of either individual.

First, an act of sacrifice typically enhances the probability that one's partner will reciprocate such acts in future noncorrespondent situations. In the context of a generally loving and committed relationship, few individuals are likely to "take a free ride," responding to a partner's sacrifice with exploitation. Indeed, if they were to take a free ride, the partner would proba-

bly discontinue acts of sacrifice (i.e., defection yields reciprocal defection). For many forms of noncorrespondence, both individuals achieve better outcomes over the course of an extended interaction if both behave in a prosocial manner than in accordance with immediate self-interest (cf. Axelrod, 1984; Pruitt & Kimmel, 1977). Thus, in the context of an ongoing relationship, for example, John and Mary may in fact achieve the highest possible benefit by developing patterns of reciprocal sacrifice.

Second, when an individual reacts to a noncorrespondent dilemma by sacrificing immediate self-interest, the individual literally solves the problem on the partner's behalf. Specifically, the individual eliminates one or more undesirable response options with which the partner was previously confronted (e.g., eliminating the partner's need to sacrifice) and creates a more congenial set of options for the partner (e.g., allowing the partner to enjoy good outcomes and exhibit loving gratitude for the individual's gesture of good will; cf. Kelley, 1984). Thus, acts of sacrifice frequently do more than simply solve the problem at hand; such behavior may exert more global beneficial effects on the general circumstances of interdependence within which the partners operate.

Third, reliable tendencies toward sacrifice may create a general "climate" of trust and cooperation in which other prorelationship events become increasingly probable. When partners develop generalized habits of prorelationship transformation, they are more likely to seek out and identify patterns of interaction for which little or no sacrifice is called. For example, although problems of noncorrespondence may appear to be insurmountable, partners with reliable prorelationship habits may find it easier to locate congenial solutions, whereby both parties benefit, such as *logrolling* or *integrative solutions* (cf. Peterson, 1983; Pruitt & Lewis, 1975).

Fourth, sacrifice serves a communicative function, providing relatively unambiguous evidence of the individual's prorelationship orientation. Such acts have "surplus value," yielding positive consequences for the partner above and beyond any direct impact on experienced outcomes. Acts of sacrifice are likely to enhance one's partner's trust and conviction that the individual can be relied on to behave in a prorelationship manner (cf. Holmes, 1989; Holmes & Rempel, 1989). In turn, enhanced trust is likely to increase one's partner's willingness to commit to the relationship and to engage in reciprocal prorelationship acts. In fact, through dissonance reduction or self-perception processes, for example, John's acts of sacrifice may serve to enhance his feelings of commitment (e.g., "I deviated from what would seem to be in my self-interest, thereby benefitting my partner, so I must be committed to my relationship"; Aronson & Mills, 1959; D. J. Bem, 1972).

Thus, several lines of reasoning support the hypothesis that willingness to sacrifice may be associated with enhanced couple functioning. Research provides indirect support for this claim, in that levels of dyadic adjustment and probability of persistence are shown to be associated with prorelationship maintenance behaviors, such as willingness to accommodate rather than retaliate when a partner behaves poorly (e.g., Gottman, 1979; Jacobson & Margolin, 1979; Rusbult et al., in press).

A Model of the Determinants and Consequences of Willingness to Sacrifice

Given that our work represents an initial empirical examination of sacrifice in the context of close relationships, we have provided a rather detailed description of the process by which sacrifice comes about and the process by which such acts affect quality of couple functioning. At the same time, that this is an initial empirical examination means that it is important to keep our preliminary explorations relatively focused. In this research, we examine two broad issues regarding sacrifice by testing hypotheses concerning (a) the determinants of and (b) the consequences of willingness to sacrifice.

We examined *willingness* to sacrifice rather than *level or frequency* of actual sacrifice because the prorelationship motivation embodied in willingness to sacrifice is of most direct relevance to our interdependence analysis. To understand prorelationship motivation and behavior, a key issue is whether departures from immediate self-interest are evident when the necessity for such departures arises. Thus, it is important to measure sacrifice in such a manner as to "unconfound" prorelationship motivation from degree of couple correspondence. For example, Mary may be ready and willing to sacrifice when the necessity arises. But if Mary's relationship is characterized by exceptionally high correspondence, she may exhibit low levels of actual sacrifice because the necessity for sacrifice seldom arises. In the initial explorations reported in this article, a relatively straightforward means of assessing sacrifice, independent of degree of correspondence, was to examine willingness to sacrifice. (In addition, in one of our studies, we used a behavioral measure to examine level of sacrifice in a context in which degree of noncorrespondence was controlled.)

Relevant to the understanding of the determinants of sacrifice, the most important hypothesis guiding our work is the claim that commitment is a central relationship-specific motive that is associated with enhanced willingness to sacrifice (Hypothesis 1). Of lesser importance, we examine the well-documented finding that commitment level is positively associated with satisfaction level, negatively associated with perceived quality of alternatives, and positively associated with investment size (Hypothesis 1a). Also, extending earlier logic regarding the role of dependence in the promotion of willingness to sacrifice, we also predict that greater satisfaction, poorer alternatives, and greater investments are associated with greater willingness to sacrifice (Hypothesis 1b). At the same time, we assume that commitment is a broad, relationship-specific motive that emerges out of relatively more specific circumstances of interdependence, a motive that represents more than the sum of the components from which it arises. Thus, we assume that commitment mediates the effects of other features of interdependence; that is, when commitment is included in a model, along with satisfaction, alternatives, and investments, these variables contribute little variance above and beyond commitment (Hypothesis 1c).

Relevant to the understanding of the consequences of sacrifice, our most important hypothesis is that willingness to sacrifice is associated with enhanced couple functioning, that is, greater dyadic adjustment and greater probability of persistence (Hypothesis 2). Of lesser importance, we hypothesize that commitment level exhibits parallel links with couple functioning; that is, strong commitment is also likely to be associated with healthy functioning (Hypothesis 2a). Finally, we examine the role of willingness to sacrifice in the mediation of the association between commitment and quality of functioning. In this respect, note that sacrifice is just one of numerous prorelationship mechanisms exhibited by committed individuals by which commit-

ment enhances couple well-being. (Presumably, if we could identify all of the prorelationship mechanisms that are motivated by commitment, collectively, these mechanisms would wholly mediate the link between commitment and couple functioning.) Moreover, sacrifice may "feed back on" commitment. For example, an act of sacrifice may be experienced as an investment in one's relationship, which in turn may strengthen feelings of commitment. Accordingly, we hypothesize that commitment as well as willingness to sacrifice independently contribute to predict quality of couple functioning, anticipating that willingness to sacrifice partially mediates the effects of commitment (Hypothesis 2b). Specifically, we predict that (a) commitment exerts direct effects on couple functioning that extend beyond that which is mediated by willingness to sacrifice (i.e., when the effects of sacrifice are taken into consideration, commitment accounts for significant unique variance in couple functioning); (b) willingness to sacrifice exerts direct effects on couple functioning that extend beyond the variance attributable to commitment (i.e., when the effects of commitment are taken into consideration, willingness to sacrifice accounts for significant unique variance in couple functioning); and (c) willingness to sacrifice "explains" a portion of the association between commitment and couple functioning, significantly mediating this link (i.e., in comparison to the simple link between commitment and couple functioning, the commitment–functioning link is reduced when shared variance with sacrifice is taken into consideration).

Six studies provide preliminary evidence relevant to the model outlined above. Studies 1, 2, and 4 are cross-sectional survey studies, Study 3 is a simulation experiment, and Studies 5 and 6 are longitudinal studies. In studies 1–5, we examine dating relationships; whereas in Study 6, we examine marital relationships. All six studies include self-report measures of willingness to sacrifice; Study 4 also includes a behavioral measure of sacrifice, providing evidence regarding convergence of findings across measurement techniques. All six studies include self-report measures of commitment level and the three predictors of commitment (i.e., satisfaction, alternatives, and investments). Studies 3–6 also include measures of quality of couple functioning, assessing level of dyadic adjustment, persistence in a relationship, or both. Thus, in these studies, we make use of the concept of converging operations by testing parallel hypotheses with a variety of methods, participant populations, and measurement techniques.

Studies 1 and 2

Studies 1 and 2 are cross-sectional survey studies. Both studies include measures of satisfaction, alternatives, investments, commitment, and willingness to sacrifice, allowing us to test hypotheses concerning the predictors of sacrifice. Because both studies were conducted in the Netherlands, Study 1 was partially exploratory, designed not only to test model predictions but also to examine the reliability of (a) our measure of willingness to sacrifice and (b) Dutch translations of investment model measures.

Method

Participants. Study 1 participants were 105 individuals (57 women, 47 men, and 1 individual who did not report gender) who were recruited at a variety of locations (e.g., in the cafeteria and library) on the campus of the Free University at Amsterdam. Participants were 23.95 years old on average, and their relationships were about 32 months in duration. Study 2 participants were 83 individuals (44 women, 39 men) who were recruited by means of an advertisement placed in a local university newspaper that invited individuals who were involved in dating relationships to participate in an interpersonal relationships study. Participants were 22.65 years old on average, and their relationships were about 30 months in duration. Participants were paid 12.50 Dutch guilders (approximately $7.00 in U.S. currency) for taking part in Study 2.

Procedure. Participants completed questionnaires describing their current dating relationships, answering questions designed to measure willingness to sacrifice, commitment level, satisfaction level, quality of alternatives, and investment size. Three procedural differences distinguished Study 1 from Study 2: (a) Study 1 questionnaires were administered individually, whereas Study 2 questionnaires were administered to groups of 10 to 15 participants; (b) Study 2 participants were paid, whereas Study 1 participants were not; and (c) given that Dutch scales to measure model variables had not previously been developed, a few items developed for Study 1 were modified for use in Study 2 to improve measure reliability and validity (e.g., minor changes in wording and an addition of a few items). After completing their questionnaires, participants were debriefed and thanked for their assistance.

Questionnaires. To measure willingness to sacrifice, we assessed activities that were relatively central to the individual's well-being by asking each participant to list, in order, the three "most important activities in your life, other than your relationship with your partner." Participants listed life domains, such as parents and siblings, career, education, religion, friends, or pastimes (e.g., going to the beach and playing soccer). We pitted personal well-being against relationship well-being, using the logic of forced-choice methodology: For each activity, the participant was asked, "Imagine that it was not possible to engage in Activity 1 and maintain your relationship with your partner. To what extent would you consider ending your relationship with your partner?" (0 = *definitely would not consider ending relationship,* 8 = *definitely would consider ending relationship,* reverse scored; Study 1 and Study 2 αs = .83 and .82, respectively).[1]

The measures of commitment and the three investment model variables were modeled after those used in prior research (Rusbult, 1983; Rusbult et al., 1991). In Study 1, commitment level was measured with seven items (e.g., "Do you feel committed to maintaining your relationship with your partner?"; 0 = *not at all committed,* 8 = *completely committed;* Study 1 α = .73). An additional item was developed for Study 2, yielding an eight-item measure with improved reliability (Study 2 α = .87). In both studies, satisfaction level was measured with five items (e.g., "All things considered, to what degree do you feel satisfied with your relationship?"; 0 = *not at all satisfied,* 8 =

[1] The measure of willingness to sacrifice emphasized one's desire to avoid harming the relationship (i.e., "To what degree would you consider ending your relationship"); three- or four-item versions of this instrument were used in Studies 1, 2, and 5. Our measure of willingness to sacrifice emphasizes the sacrificial act per se (i.e., "To what degree would you consider giving up this activity"; see Appendix); versions of this instrument were used in Studies 3, 4, and 6 (a three-item version was used by Van Lange, Agnew, Harinck, & Steemers, in press; the briefer, three-item version also exhibits good reliability and validity). Note that our sacrifice instrument does not include a conceptual overlap with the commitment instrument, which is used to include items tapping subjective commitment (e.g., "Do you feel committed to maintaining your relationship with your partner?"), psychological attachment (e.g., "Do you feel attached to your relationship with your partner [like you're 'linked' to your partner, whether or not you're happy with the relationship]?"), and intent to persist (e.g., "For how much longer do you want your relationship to last?").

completely satisfied; Study 1 and Study 2 αs = .90 and .88). In Study 1, quality of alternatives was measured with four items (e.g., "How attractive are the people other than your current partner with whom you could become involved?"; 0 = *alternatives are not at all appealing,* 8 = *alternatives are extremely appealing*). One item exhibited a low item–total correlation and was dropped. However, the three-item measure remained unreliable, in part because this construct was operationalized by items that tapped such diverse qualities as the availability of alternatives, attractiveness of alternatives, and option of noninvolvement (Study 1 α = .27). In Study 2, two items were added to the three used in Study 1, yielding a five-item measure with improved reliability (Study 2 α = .64). In Study 1, investment size was measured with four items (e.g., "Have you put things into your relationship that you would in some sense lose if the relationship were to end [e.g., time spent together or secrets disclosed to one another]?"; 0 = *put nothing into relationship,* 8 = *put everything into relationship*). One item was deleted because of its weak item–total correlation, yielding a three-item scale which was judged to be acceptable in light of the diversity of this construct (e.g., material investments, shared secrets, invested time; Study 1 α = .59). In Study 2, the worst item was reworded, and two items were added, yielding a six-item measure with improved reliability (Study 2 α = .65). Because the items designed to tap each construct exhibited acceptable reliability, we developed a single, averaged measure of each construct.

Results and Discussion

Correlational analyses. The first step in the analyses was to calculate simple correlations among all variables, the results of which are summarized in Table 1 (see Simple *r* with criterion column). Consistent with Hypothesis 1, in Studies 1 and 2 commitment level was significantly positively correlated with willingness to sacrifice. Consistent with the secondary hypotheses, willingness to sacrifice was positively correlated with satisfaction level and investment size and was negatively correlated with quality of alternatives (Hypothesis 1b). Also, commitment was positively correlated with satisfaction and investments and was negatively correlated with alternatives (Hypothesis 1a).

Commitment. We regressed commitment simultaneously onto the three investment model variables to determine if each variable accounted for a unique variance in commitment (see Table 1 analyses of commitment level). Consistent with Hypothesis 1a, these variables accounted for 60% of the variance in commitment in Study 1 and 55% of the variance in Study 2. As expected, satisfaction and alternatives exerted significant effects in both studies. The effect of investments was significant in Study 1 but not in Study 2. This difference does not appear to have resulted from differential reliability or multicollinearity (reliabilities and correlations among variables were approximately equivalent for Studies 1 and 2). However, there was some evidence of a restricted range in Study 2 (*SD* for investments = 1.25 in Study 1 and 1.06 in Study 2). Also, the Study 2 sample was smaller than the Study 1 sample, yielding less powerful regression tests.

Willingness to sacrifice. Consistent with Hypothesis 1, commitment level accounted for 24% of the variance in sacrifice in Study 1 and 23% of the variance in Study 2 (see Table 1 analyses of willingness to sacrifice). Moreover, satisfaction, alternatives, and investments exhibited the predicted associations with sacrifice (Hypothesis 1b). Thus, our data met the prerequisites for tests of mediation: (a) The presumed distal causes of the criterion are associated with the criterion (satisfaction, alternatives, and investments are associated with sacrifice), (b) the presumed distal causes of the criterion are associated with the presumed mediator (satisfaction, alternatives, and investments are associated with commitment), and (c) the presumed mediator is associated with the criterion (commitment is associated with sacrifice; Baron & Kenny, 1986).

We performed model comparison analyses to determine whether commitment level plausibly mediates the relationship between the investment model variables and willingness to sacrifice, as predicted in Hypothesis 1c (Cramer, 1972). In Model 1, sacrifice was regressed onto commitment; in Model 2, sacrifice was regressed simultaneously onto commitment, satisfaction, alternatives, and investments (see Model 1 and Model 2 analyses of willingness to sacrifice). A comparison of Model 2 to Model 1 reveals that satisfaction, alternatives, and investments did not account for significant unique variance above and beyond commitment (i.e., Model 2 was not superior to Model 1; see Table 1 statistics of a comparison of Model 2 to Model 1; Fs = 1.34 and 1.54, respectively, and both ps $> .20$). The only variables that contributed even marginally were investment size in Study 1 and alternative quality in Study 2. These results are consistent with the assertion that commitment largely mediates the effects of satisfaction, alternatives, and investments on sacrifice (Hypothesis 1c).[2]

Study 3

Studies 1 and 2 reveal good support for predictions concerning the correlates of sacrifice (Hypotheses 1 and 1b), correlates of commitment (Hypothesis 1a), and role of commitment to mediate the effects of the investment model variables (Hypothesis 1c). Study 3 is a simulation experiment. Of course, simulations are artificial; it is unclear whether participants can effectively "place themselves" in hypothetical dilemmas and it is questionable whether participants' descriptions of what they think they might do matches how they actually behave (Cooper, 1976; Freedman, 1972). Nevertheless, in a study of close relationships, a simulation experiment represents the only means to systematically manipulate satisfaction, alternatives, and investments, thereby inducing high variability in feelings of commitment. In addition to inducing high variance in commitment, Study 3 complements Studies 1 and 2 in several other respects. First, whereas Studies 1 and 2 tapped passive sacrifice (i.e., forfeiting otherwise desirable activities), Study 3 assessed both passive and active sacrifice (i.e., engaging in otherwise undesirable activities). Second, whereas Studies 1 and 2 measured sacrifice in such a manner as to emphasize harm to the ongoing relationship, the Study 3 measures emphasized the sacrificial

[2] We performed exploratory analyses to examine possible gender differences in our findings. Two-group analyses of variance (ANOVAs) revealed that, in both studies, men reported greater alternative quality than did women, Study 1 *M*s = 3.70 versus 3.20, $F(1, 102) = 4.11$, $p < .05$; Study 2 *M*s = 3.78 versus 3.18, $F(1, 82) = 4.61$, $p < .05$. Also, correlational analyses performed separately for women and men reveal that 11 of 12 links with commitment were significant (among Study 2 women, one correlation was nonsignificant), as were 14 of 16 links with sacrifice (among Study 2 women, two correlations were nonsignificant). Thus, there do not appear to be substantively meaningful gender differences in the obtained findings.

Table 1
The Prediction of Commitment Level and Willingness to Sacrifice, Studies 1 and 2

Criteria	Simple *r* with criterion	Multiple regression results			
		β	% of variance	*F*	*df*
Study 1 analyses					
Commitment level					
Model 1					
Satisfaction level	.70**	.58**	60**	49.55**	3, 100
Alternative quality	−.48**	−.23**			
Investment size	.42**	.23**			
Willingness to sacrifice[a]					
Model 1					
Commitment level	.49**	.49**	24**	32.27**	1, 102
Model 2					
Commitment level	.49**	.34**	27**	9.15**	4, 99
Satisfaction level	.37**	.07			
Alternative quality	−.31**	−.09			
Investment size	.38**	.16[c]			
Study 2 analyses					
Commitment level					
Model 1					
Satisfaction level	.65**	.43**	55**	31.51**	3, 79
Alternative quality	−.62**	−.38**			
Investment size	.32**	.10			
Willingness to sacrifice[b]					
Model 1					
Commitment level	.48**	.48**	23**	23.66**	1, 80
Model 2					
Commitment level	.48**	.40**	27**	7.19**	4, 77
Satisfaction level	.26*	−.14			
Alternative quality	−.42**	−.21[c]			
Investment size	.25*	.11			

[a]Comparison of Model 2 to Model 1: $F(3, 99) = 1.34$, $p < .27$. [b]Comparison of Model 2 to Model 1: $F(3, 77) = 1.54$, $p < .21$. [c]Marginally significant at $p < .10$.
*$p < .05$. **$p < .01$.

act itself. Third, in Study 3, we obtained evidence regarding quality of couple functioning by measuring level of dyadic adjustment and breakup intentions.

Method

Participants. Participants were 101 undergraduates (59 women, 42 men) at the University of North Carolina (UNC) at Chapel Hill who participated in partial fulfillment of the requirements for introductory psychology courses. Participants were randomly assigned to one of eight experimental conditions, with about equal proportions of men and women across conditions. Participants were 19.53 years old on average; most were freshmen or sophomores (54% freshmen, 30% sophomores, 10% juniors, 7% seniors) and Caucasian (83% Caucasian, 13% African American, 2% Asian American, 2% other).

Procedure. Participants read an essay describing a hypothetical situation and placed themselves in the position of the protagonist, imagining how they would feel and react if they were in that situation. Eight versions of the essay orthogonally manipulated satisfaction (low vs. high), alternatives (good vs. poor), and investments (low vs. high). Essays read by men and women were identical except for changes in the gender of the protagonist (Jane vs. John), current partner (Steve vs. Susan), and alternative partner (Andy vs. Ann). After reading the essay, participants completed a questionnaire that tapped key model variables, including satisfaction, alternatives, investments, commitment, passive sacrifice, active sacrifice, dyadic adjustment, and breakup intentions. At the end of the session, participants were debriefed and thanked for their assistance.

Experimental manipulations. Satisfaction level was manipulated through variations in descriptions of the current relationship. *High satisfaction* essays described a 4-month relationship that was "very satisfying"; one's partner was "attractive and intelligent" and "full of surprises"; "the two of you alway seem to have a good time"; and "you have similar attitudes about many issues that affect the way you experience life together, including religion, family, what's important in life." In *low satisfaction* essays, each phrase was modified in such a manner as to reflect low satisfaction with the relationship. Quality of alternatives was manipulated through variations in descriptions of alternatives to the current relationship. *Good alternatives* essays described alternatives as "reasonably attractive"; for example, "you recently met a man named Andy," it was "very easy to talk to him," he had a "special quality about him that you haven't seen in that many people you've known," and you and he "enjoy spending your time in similar ways"; if the relationship were to end, "your alternatives would seem to be very attractive." In *poor alternatives* essays, each phrase was modified in such a manner as to reflect poor alternatives. Investment size was manipulated through variations in descriptions of the resources protagonists had put into their relationships. *High investments* essays indicated that

participants had "invested a good deal" in their relationships, sharing "many life experiences"; "devoted time and energy to working things out. . . trying to solve problems, telling each other your private thoughts and feelings, confiding in each other"; and "feel highly invested in your relationship." In *low investments* essays, each phrase was modified in such a manner as to reflect low investments in the current relationship.

Questionnaire. The Study 3 measures of sacrifice differed from those used in Studies 1 and 2: (a) Studies 1 and 2 focus on the most important activities in the individual's life, whereas Study 3 assessed more "mundane" forms of sacrifice (e.g., to listen to atonal music); (b) Studies 1 and 2 measure passive sacrifice, whereas Study 3 assessed both passive and active sacrifice; and (c) Studies 1 and 2 measured sacrifice in such a manner as to emphasize harm to the ongoing relationship (i.e., to end the relationship rather than forego a desired activity), whereas Study 3 used measures that emphasized the sacrificial act itself (i.e., to forego [or enact] an activity rather than harm the relationship). To measure active sacrifice, participants were presented with four moderately undesirable activities (e.g., "attending parties where I don't know anyone"). For each activity, the participant was asked, "Imagine that it was necessary to engage in Activity 1 in order to maintain and improve your relationship (necessary for reasons unrelated to your partner's needs or wishes; that is, it wasn't your partner's fault). To what extent would you consider engaging in Activity 1?" (0 = *definitely would not engage in this activity,* 8 = *definitely would engage in this activity;* α = .86). To measure passive sacrifice, participants were presented with four moderately desirable activities (e.g., "spending time with same-gender friends"). For each activity, the participant was asked, "Imagine that, if you were to engage in Activity 1, it would harm your relationship (harmful for reasons unrelated to your partner's needs or wishes; that is, it wasn't your partner's fault). To what extent would you consider giving up Activity 1?" (0 = *definitely would not give up this activity,* 8 = *definitely would give up this activity;* α = .84). In addition, we calculated total sacrifice, averaging the eight items tapping active and passive sacrifice (α = .80).

Commitment level (α = .94), satisfaction level (α = .93), quality of alternatives (α = .96), and investment size (α = .98) were measured using items that paralleled those used in Studies 1 and 2 and in other research, modified so as to describe the simulated relationship. We also assessed dyadic adjustment by using a version of Spanier's (1976) Dyadic Adjustment Scale that is suitable for dating relationships. This 32-item instrument includes Likert, checklist, and dichotomous items. Because commitment and satisfaction are key variables in our work, we dropped items that might be relevant to these constructs (e.g., "How often do you discuss or have you considered ending your relationship?") to yield a commitment- and satisfaction-purged measure that tapped qualities of healthy functioning, such as intimacy, problem solving, and shared activities (e.g., "Do you and your partner engage in outside interests together?"; α = .96). Breakup intentions were measured with the question, "If you were to make a decision today about whether to remain in versus end your relationship, what would you do?" (0 = *remain in my relationship,* 1 = *end my relationship*); 33 of 101 participants reported an intent to break up.

The questionnaire also included the Balanced Inventory of Desirable Responding, with subscales Self-Deception and Impression Management (Paulhus, 1991; 40 items, α = .72 and .80). No model variables significantly correlated with either subscale, suggesting that our measures are relatively free of socially desirable response tendencies. Because our measures appear to be acceptably reliable, we calculated an averaged score for each variable.

Results and Discussion

ANOVAs. Four-factor ANOVAs were performed on the measures of satisfaction, alternatives, and investments. The independent variables were satisfaction level (low vs. high), quality of alternatives (low vs. high), investment size (low vs. high), and participant gender (women vs. men). Compared with participants in the low satisfaction condition, those in the high satisfaction condition reported greater satisfaction with their relationships, *M*s = 2.93 versus 5.89; $F(1, 93) = 196.84$, $p < .01$. Compared with participants in the poor alternatives condition, those in the good alternatives condition reported more attractive alternatives, *M*s = 3.32 versus 6.15; $F(1, 85) = 96.11$, $p < .01$. Compared with participants in the low investments condition, those in the high investments condition reported greater investments in their relationships, *M*s = 2.25 versus 6.97; $F(1, 85) = 475.30$, $p < .01$. Thus, the manipulations appear to have created the intended conditions.[3]

Parallel four-factor analyses were performed on the primary model variables—commitment level, passive sacrifice, active sacrifice, total sacrifice, dyadic adjustment, and breakup intentions. (The data were not analyzed using multivariate procedures because total sacrifice is colinear with active and passive sacrifice.) These analyses reveal that all main effects were in the predicted direction (see Table 2 for a summary); 16 of 18 main effects were significant (alternative quality did not significantly affect active sacrifice or adjustment). Only 7 out of 72 interaction effects were significant. Because these effects were inconsistently observed, it appears that the independent variables by and large exert additive effects on key model variables, as represented in the regression analyses reported below.

Correlational analyses. Simple correlations among all key variables are displayed in Table 2 (see Simple *r* with criterion column). For satisfaction, alternatives, and investments, we present correlations with categorical, manipulated variables. We performed a series of preliminary analyses to examine the associations of active sacrifice, passive sacrifice, and total sacrifice with commitment, dyadic adjustment, and breakup intentions. Consistent with Hypothesis 1, commitment was positively correlated with passive sacrifice, active sacrifice, and total sacrifice (*r*s = .54, .49, and .66, respectively, and all *p*s < .01). Consistent with Hypothesis 2, all three measures of sacrifice were correlated with both dyadic adjustment (*r*s = .51, .43, and .61,

[3] The analyses also reveal several instances of cross-manipulation influence: (a) With a main effect of quality of alternatives on the satisfaction measure, participants in the poor alternatives condition reported greater satisfaction than those in the good alternatives condition; (b) with a main effect of investments on the satisfaction measure, participants in the high investments condition reported greater satisfaction than those in the low investments condition; and (c) with a main effect of satisfaction on the investments measure, participants in the high satisfaction condition reported greater investments than those in the low satisfaction condition. These cross-influence effects are weak in comparison to the effect of each variable on its manipulation check. Nevertheless, to ensure that each effect observed in these analyses is reliable despite such cross-influence, when a significant effect was observed for satisfaction or investments, we performed auxiliary analyses, including as covariates the measure(s) for the manipulation(s) with which the independent variable was confounded (e.g., we examined satisfaction main effects in analyses in which we controlled for cross-influence by including the alternatives and investments measures). Auxiliary analyses reveal only two instances in which tests in which we controlled for cross-influence modified the significance–nonsignificance of the obtained findings, suggesting that contamination by cross-influence is minimal. Accordingly, these analyses are not described.

Table 2
The Prediction of Commitment Level, Willingness to Sacrifice, Dyadic Adjustment, and Breakup Intentions: Study 3

Criteria	Simple *r* with criterion	Multiple regression results			
		β	% of variance	*F*	*df*
Commitment level					
Model 1					
Manipulated satisfaction	.51**	.51**	68**	66.14**	3, 97
Manipulated alternatives	−.31**	−.31**			
Manipulated investments	.57**	.57**			
Willingness to sacrifice[a]					
Model 1					
Commitment level	.66**	.66**	44**	76.28**	1, 99
Model 2					
Commitment level	.66**	.42**	47**	20.91**	4, 96
Manipulated satisfaction	.43**	.22*			
Manipulated alternatives	−.22**	−.09			
Manipulated investments	.41**	.18[f]			
Dyadic adjustment[b,c]					
Model 1					
Willingness to sacrifice	.61**	.61**	37**	54.87**	1, 95
Model 2					
Willingness to sacrifice	.61**	.18*	59**	68.52**	2, 94
Commitment level	.76**	.64**			
Breakup intentions[d,e]					
Model 1					
Willingness to sacrifice	−.49**	−.49**	24**	31.12**	1, 99
Model 2					
Willingness to sacrifice	−.49**	−.13	41**	34.22**	2, 98
Commitment level	−.63**	−.55**			

[a]Comparison of Model 2 to Model 1: $F(3, 96) = 1.82$, $p < .15$. [b]Comparison of Model 2 to Model 1: $F(1, 94) = 52.46$, $p < .01$. [c]Mediation of commitment–adjustment association by willingness to sacrifice: 58% vs. 41%, discrepancy $z = 2.34$, $p < .02$. [d]Comparison of Model 2 to Model 1: $F(1, 98) = 28.64$, $p < .01$. [e]Mediation of commitment–intentions association by willingness to sacrifice: 40% vs. 30%, discrepancy $z = 1.39$, $p < .16$. [f]Marginally significant at $p < .10$.
*$p < .05$. **$p < .01$.

all $ps < .01$) and breakup intentions ($rs = -.41$, $-.35$, and $-.49$, all $ps < .01$). Because these analyses reveal parallel findings for active and passive sacrifice, Table 2 presents findings for total willingness to sacrifice. Consistent with Hypothesis 2a, correlational analyses reveal significant associations of commitment with both dyadic adjustment and breakup intentions (see Table 2). The effects of satisfaction, alternatives, and investments were reviewed earlier, to report the ANOVA results (Hypotheses 1a and 1b; also see Table 2).

Commitment. Consistent with Hypothesis 1a, a three-factor regression analysis reveals that the three investment model variables accounted for 68% of the variance in commitment (see Table 2 analyses of commitment level). All three variables accounted for a unique variance to predict commitment level.[4]

Willingness to sacrifice. Consistent with Hypothesis 1, commitment accounted for 44% of the variance in total willingness to sacrifice (see Table 2 analyses of willingness to sacrifice). Moreover, satisfaction, alternatives, and investments exhibited the predicted associations with sacrifice (Hypothesis 1b). We performed model comparison analyses to determine whether commitment plausibly mediates the relationship between investment model variables and willingness to sacrifice, as predicted in Hypothesis 1c. In Model 1, sacrifice was regressed onto commitment; in Model 2, sacrifice was regressed simultaneously onto commitment, satisfaction, alternatives, and investments. A comparison of Models 1 and 2 reveals that satisfaction, alternatives, and investments did not account for a significant variance beyond commitment (i.e., Model 2 was not superior to Model 1; see Comparison of Model 2 to Model 1; $F = 1.82$, $p > .15$).

[4] To obtain preliminary information relevant to the understanding of why commitment promotes sacrifice, the questionnaire includes items to measure each of nine possible motives. Correlational analyses reveal that six motives were consistently linked with prorelationship orientation, as revealed by significant correlations with commitment, sacrifice, dyadic adjustment, and breakup intentions. Prorelationship orientation was stronger among participants with a greater desire to improve their relationship, sense of deriving personal benefit from partner benefit, desire to reciprocate previous partner's sacrifice, altruistic motivations, anticipation of future partner sacrifice, and intention to indebt partner. The analyses reveal only weak support for the role of three motives in the promotion of a prorelationship orientation, including a belief that mutual sacrifice is beneficial in the long run, desire to be fair, and desire to comply with social norms. Of course, given that the motives underlying prorelationship behavior are not necessarily consciously accessible and that prorelationship transformation frequently is habit driven, in future research it would be desirable to experimentally manipulate these motives to more definitely explore issues concerning the nature of transformation of motivation.

Although these three variables did not collectively account for a significant variance beyond commitment, satisfaction continued to exhibit a significant link with sacrifice and investment size continued to exhibit a marginal link with sacrifice. These results are generally consistent with the assertion that commitment largely mediates the effects of satisfaction, alternatives, and investments (Hypothesis 1c).

Dyadic adjustment and breakup intentions. Consistent with Hypothesis 2, willingness to sacrifice accounted for 37% of the variance in dyadic adjustment and 24% of the variance in breakup intentions. Consistent with Hypothesis 2a, commitment level exhibited the predicted associations with both adjustment and breakup intentions. We performed model comparisons to determine whether commitment accounts for significant variance above and beyond sacrifice. In Model 1, each measure of couple functioning was regressed onto sacrifice; in Model 2, these criteria were regressed onto both sacrifice and commitment. Comparisons of Models 1 and 2 reveal that, in each instance, commitment accounted for a significant variance beyond sacrifice (i.e., Model 2 was superior to Model 1). Beyond the effects of commitment, sacrifice accounted for a significant unique variance in dyadic adjustment but not breakup intentions.

Is mediation by willingness to sacrifice statistically significant (e.g., does willingness to sacrifice account for a significant portion of the association between commitment and adjustment)? Commitment alone accounted for 58% of the variance in adjustment ($r = .76$); when shared variance with sacrifice was taken into consideration, commitment accounted for a significantly lower 41% of the variance in adjustment ($\beta = .64$; discrepancy $z = 2.34$, $p < .02$). Commitment alone accounted for 40% of the variance in breakup intentions ($r = -.63$); when a shared variance with sacrifice was taken into consideration, commitment accounted for a nonsignificantly lower 30% of the variance in intentions ($\beta = -.55$; discrepancy $z = 1.39$, *ns*).

Thus, willingness to sacrifice significantly mediates the association between commitment and adjustment; willingness to sacrifice does not mediate the association between commitment and breakup intentions. Specifically and in partial support of Hypothesis 2b, (a) commitment exhibits associations with adjustment and breakup intentions that extend beyond that which is mediated by willingness to sacrifice (i.e., commitment appears to influence functioning through mechanisms other than sacrifice); (b) when the simultaneous effects of commitment are taken into account, willingness to sacrifice accounts for a significant unique variance in adjustment but not breakup intentions; and (c) willingness to sacrifice partially mediates the association between commitment and adjustment but does not mediate the association with breakup intentions (i.e., the commitment–adjustment link is reduced when shared variance with sacrifice is taken into consideration; the reduction was nonsignificant for breakup intentions).[5]

Study 4

Studies 1 through 3 reveal good support for predictions concerning the correlates of commitment and sacrifice (Hypotheses 1, 1a, and 1b) as well as support for the hypothesized role of commitment to mediate the effects of the investment model variables (Hypothesis 1c). Study 3 provides good support for predictions concerning the correlates of couple functioning (Hypotheses 2 and 2a) and partial support for predictions concerning the role of sacrifice to mediate the effects of commitment (Hypothesis 2b). The Study 4 analyses are based on data obtained at Time 2 of a three-wave longitudinal study of dating couples. Study 4 complements Studies 1–3 by providing evidence that regards links between key model variables and a behavioral measure of sacrifice. In addition, Study 4 provides evidence regarding the validity of a self-report measure of sacrifice by an examination of associations between self-reported willingness to sacrifice and (a) a behavioral measure of sacrifice obtained for each individual and (b) the partner's report of the individual's willingness to sacrifice.

Method

Participants. The data in Study 4 are from 45 couples (45 women, 45 men) who participated in Time 2 activities of a three-wave longitudinal study of dating relationships. Participants were recruited from the UNC introductory psychology research participant pool or an advertisement placed in the campus newspaper. Participants were 19.94 years old on average, with about equal numbers from each year in school (17% freshmen, 28% sophomores, 24% juniors, 24% seniors, 8% other), and most were Caucasian (91% Caucasian, 6% African American, 1% Asian American, 3% other). At the outset of the study, partners had been involved in their relationships for about 19 months, most described their involvements as steady dating relationships (5% dating casually, 10% dating regularly, 74% dating steadily, 11% engaged or married), and most described their relationships as monogamous (91% said neither dated others, 5% said one dated others, 5% said both dated others).

Procedure. We obtained data from each couple on three occasions over the course of a semester—once every 4 to 5 weeks. At each research occasion, partners attended laboratory sessions during which they completed questionnaires and participated in laboratory tasks relevant to our project goals. While completing their questionnaires, partners were seated at separate tables so that they could not see one anothers' responses. At the end of each research session, couples were partially debriefed and reminded of upcoming activities. Participants who were recruited through the research pool received credit toward partial fulfillment of introductory psychology course requirements. Each couple was paid $10 for participation in each research session.

Behavioral sacrifice. At Time 2, each participant was taken to a separate room and asked to step up and down a stair as quickly as was comfortable for 60 s, so we could "obtain a baseline measure of heart rate during exercise"; heart rate was assessed to support this cover story. Then the participant had the opportunity to step up and down the stair for another 60 s; for each step beyond the baseline rate, the partner would be paid 10¢. This task yielded three measures: (a) Trial 1 stairsteps or number of stairsteps completed during the 60-s baseline trial, $M = 13.08$, $SD = 1.40$; (b) Trial 2 stairsteps or number of stairsteps

[5] We performed exploratory analyses to examine possible gender differences in our findings. Two-group ANOVAs reveal that men reported greater satisfaction than did women, Ms = 4.66 versus 4.23, $F(1, 85) = 4.40$, $p < .05$. Also, correlational analyses performed separately for women and men reveal that 5 of 6 links with commitment were significant (one correlation was nonsignificant among women), as were 19 of 24 links with the three measures of sacrifice (three correlations were nonsignificant among women; two were nonsignificant among men), 12 of 14 links with dyadic adjustment (one correlation was nonsignificant among women; one was nonsignificant among men), and 14 of 14 links with measures of breakup intentions. Thus, there do not appear to be substantively meaningful gender differences in the obtained findings.

completed during the second trial, $M = 21.09$, $SD = 3.73$; and (c) for-the-partner stairsteps or number of Trial 2 stairsteps completed for the partner above and beyond Trial 1 baseline stairsteps, $M = 8.01$, $SD = 3.27$.

Questionnaire. Willingness to sacrifice was measured as in Studies 1 and 2, except that participants in Study 4 were asked to list the four most important activities in their lives (rather than three activities as in Studies 1 and 2); as in Study 3, participants reported willingness to give up each activity for the good of the relationship ($\alpha = .82$). To measure perception of the partner's willingness to sacrifice, each participant was asked to list the four most important activities in the partner's life and to rate the partner's willingness to give up each activity for the good of the relationship ($\alpha = .81$). Commitment level ($\alpha = .84$), satisfaction level ($\alpha = .85$), quality of alternatives ($\alpha = .54$), and investment size ($\alpha = .72$) were measured with items that paralleled those used in Studies 1–3 and in other research. As in Study 3, we assessed dyadic adjustment using a version of Spanier's (1976) Dyadic Adjustment Scale that is suitable for dating relationships. Again, because commitment and satisfaction were key predictor variables in our work, we dropped items relevant to these constructs to yield a commitment- and satisfaction-purged measure of adjustment ($\alpha = .92$). Because our measures appeared to be acceptably reliable, we calculated an averaged score for each variable.

Results and Discussion

The data obtained from partners in a given relationship are not statistically independent. To account for this problem, we performed all analyses using three strategies: (a) analyzing individual-level data, ignoring the nonindependence problem; (b) analyzing individual-level data separately for female and male partners; and (c) analyzing couple-level data, using average scores for male and female partners. The three strategies yielded consistent results. Unless otherwise indicated, the analyses reported below are based on couple-level data (this analysis strategy is parsimonious and avoids the problems of nonindependence associated with individual-level data).

Correlational analyses. As expected, the measure of Trial 1 stairsteps (i.e., baseline stairsteps) was not correlated with self-reported willingness to sacrifice, commitment, or dyadic adjustment ($rs = .13$, $-.08$, and $.05$, respectively, all ns). Also as expected, the measures of Trial 2 stairsteps and for-the-partner stairsteps were correlated with self-report measures of willingness to sacrifice ($rs = .36$ and $.36$, both $ps < .05$), commitment ($rs = .27$ and $.31$, both $ps < .05$), and adjustment ($rs = .27$ and $.26$, both $ps < .10$). Because Trial 2 stairsteps and for-the-partner stairsteps related similarly to self-reported sacrifice and other model variables, in the following analyses, we use the for-the-partner stairsteps measure as an index of behavioral sacrifice.

In Study 4, we obtained data relevant to the assessment of the validity of our self-report measure of sacrifice (this measure is similar to those used in the other studies). As noted above, self-reported willingness to sacrifice was significantly correlated with behavioral sacrifice. In addition, analyses of individual-level data reveal that partners exhibited moderate agreement in descriptions of one another: Male partners' self-reported willingness to sacrifice was significantly correlated with their female partners' perception of the partner's willingness to sacrifice, $r = .43$, $p < .01$; female partners' self-reported willingness to sacrifice was significantly correlated with their male partners' perception of the partner's willingness to sacrifice, $r = .38$, $p < .05$. These findings provide support for the validity of the self-report method as a means to measure willingness to sacrifice.

Simple correlations among key model variables are displayed in Table 3 (see Simple r with criterion column). Consistent with predictions, (a) satisfaction, alternatives, and investments were correlated with commitment (Hypothesis 1a), (b) commitment and investment size were correlated with behavioral sacrifice (Hypotheses 1 and 1b; satisfaction and alternatives were not significantly correlated with behavioral sacrifice), and (c) behavioral sacrifice and commitment level were correlated with dyadic adjustment (Hypotheses 2 and 2a; the former link was marginal).

Commitment. Given that the preliminary analyses above revealed consistent results for three separate analysis strategies, Table 3 presents the results of regression analyses based on couple-level data. Consistent with Hypothesis 1a, a simultaneous regression analysis reveals that the three investment model variables accounted for 69% of the variance in commitment level. All three variables accounted for significant unique variance in commitment.

Behavioral sacrifice. Consistent with Hypothesis 1, commitment accounted for 10% of the variance in behavioral sacrifice. However, investment size was the only investment model variable that was significantly predictive of behavioral sacrifice (Hypothesis 1b). Model comparison analyses reveal that satisfaction, alternatives, and investments did not account for a significant variance beyond commitment (i.e., Model 2 was not superior to Model 1; of course, this is somewhat unsurprising because neither satisfaction nor alternatives exhibited significant simple links with sacrifice). These results are consistent with the assertion that commitment largely mediates effects on behavioral sacrifice (Hypothesis 1c).

Dyadic adjustment. Consistent with Hypothesis 2, behavioral sacrifice accounted for a small but marginally significant 7% of the variance in adjustment; consistent with Hypothesis 2a, commitment was positively associated with adjustment. Model comparisons reveal that commitment accounted for a significant variance beyond behavioral sacrifice (i.e., Model 2 was superior to Model 1; given that the simple link between sacrifice and adjustment was only marginal, this finding is somewhat unsurprising). However, behavioral sacrifice did not account for a significant variance beyond commitment. Is mediation by behavioral sacrifice significant? Commitment alone accounted for 23% of the variance in adjustment ($r = .48$); when a shared variance with sacrifice was taken into account, commitment accounted for a nonsignificantly lower 21% of the variance in adjustment ($\beta = .46$; discrepancy $z = 0.21$, ns). Thus, (a) commitment exhibited an association with adjustment that extended beyond that which was mediated by sacrifice; (b) when the simultaneous effects of commitment were taken into consideration, behavioral sacrifice did not account for unique variance in adjustment; and (c) behavioral sacrifice did not significantly mediate the commitment–adjustment association (i.e., the commitment–adjustment link was not reduced when a shared variance with sacrifice was taken into account). It is possible that behavioral sacrifice did not account for unique variance and did not mediate the association between commitment and adjustment because this measure is a very concrete indicator of willingness to sacrifice. Nevertheless, it is gratifying that the behav-

Table 3
The Prediction of Commitment Level, Behavioral Sacrifice, and Dyadic Adjustment: Study 4—Time 2 Couple-Level Analyses

Criteria	Simple *r* with criterion	Multiple regression results			
		β	% of variance	*F*	*df*
Commitment level					
Model 1					
Satisfaction level	.75**	.47**	69**	30.16**	3, 40
Alternative quality	−.61**	−.23*			
Investment size	.66**	.30**			
Behavioral sacrifice[a]					
Model 1					
Commitment level	.31*	.31*	10*	4.68*	1, 43
Model 2					
Commitment level	.31*	.27	11	1.15	4, 39
Satisfaction level	.23	−.03			
Alternative quality	−.18	.04			
Investment size	.29*	.13			
Dyadic adjustment[b,c]					
Model 1					
Behavioral sacrifice	.26[d]	.27[d]	7[d]	3.25[d]	1, 43
Model 2					
Behavioral sacrifice	.26[d]	.12	26**	7.54**	2, 42
Commitment level	.48**	.46**			

[a]Comparison of Model 2 to Model 1: $F(3, 39) = 0.14$, $p < .94$. [b]Comparison of Model 2 to Model 1: $F(1, 42) = 11.07$, $p < .01$. [c]Mediation of commitment–adjustment association by willingness to sacrifice: 23% vs. 21%, discrepancy $z = 0.21$, *ns*. [d]Marginally significant at $p < .10$.
*$p < .05$. **$p < .01$.

ioral measure exhibited simple associations with commitment, self-reported willingness to sacrifice, and dyadic adjustment.[6]

Study 5

Taken together, Studies 1–4 reveal good support for predictions concerning the correlates of commitment, sacrifice, and quality of couple functioning. In addition, Studies 1–4 provide good support for predictions concerning the role of commitment to mediate effects on sacrifice but only partial support for predictions concerning the role of sacrifice and commitment to account for quality of couple functioning. Also, in Study 4, we provide data regarding the validity of our self-report measure of sacrifice. Study 5 is a two-wave longitudinal study of dating relationships. Study 5 complements and extends Studies 1–4 by determining whether sacrifice and commitment relate to the actual probability that a relationship will persist. Moreover, Study 5 extends Studies 1–4 with an examination of links between earlier predictors and later criteria and whether model variables exhibit reasonable stability over time.

Method

Participants. Participants were 87 individuals (44 women, 43 men) who took part in a two-wave longitudinal study of dating relationships in partial fulfillment of the requirements for introductory psychology courses at UNC. All participants completed Time 1 questionnaires that described their ongoing dating relationships. Nine individuals' relationships ended between Time 1 and Time 2 (3 women, 6 men); the 78 individuals (40 women, 38 men) whose relationships persisted completed Time 2 questionnaires. Participants were 19.27 years old on average, most were freshmen or sophomores (37% freshmen, 48% sophomores, 9% juniors, 6% seniors), and most were Caucasian (87% Caucasian, 10% African American, 1% Asian American, 1% other). At the outset of the study, participants had been involved in their relationships for about 15 months, most described their involvements as steady dating relationships (8% dating casually, 12% dating regularly, 75% dating steadily, 5% engaged or married) and as monogamous (83% said neither dated others, 11% said one partner dated others, 6% said both dated others).

Procedure. Sign-up sheets indicated, "To participate you must currently be involved in a dating relationship of at least 3 months in duration." At Time 1, 116 individuals volunteered to participate (58 women, 58 men). Five to 20 participants attended each research session, all of which were scheduled close to the onset of the semester. Participants completed questionnaires for researchers to measure each model variable and filled out forms listing their names, telephone numbers, and partners' names or initials. Participants also indicated whether they were willing to be contacted at the end of the semester and whether they would participate in a second session if they were still involved with their partners; 110 individuals agreed to be telephoned (95% of the 116 Time

[6] We performed exploratory analyses to examine possible gender differences in our findings. Two-group within-couple ANOVAs reveal that men exhibited greater levels of behavioral sacrifice than did women, *M*s = 8.91 versus 7.11, $F(1, 88) = 3.79$, $p < .05$. Also, correlational analyses performed separately for women and men reveal that 6 of 6 links with commitment were significant or marginal, as were 4 of 8 links with behavioral sacrifice (three correlations were nonsignificant among women; one was nonsignificant among men), and 8 of 10 links with dyadic adjustment (two correlations were nonsignificant among men). Thus, there do not appear to be substantively meaningful gender differences in the obtained findings.

1 participants). At the end of the session, participants were partially debriefed and thanked for their assistance.

Six to 9 weeks after the Time 1 sessions, we contacted participants, asking if they were still involved with their partners; if yes, Time 2 participation was scheduled. We attempted to telephone participants on as many as four occasions. A total of 91 individuals participated in Time 2 activities (83% of the 110 Time 1 participants who agreed to be telephoned): Three individuals moved from the community, 10 declined to participate, 2 did not attend any of several Time 2 appointments, and we were unable to contact 4 persons. Of the 91 Time 2 participants, 1 individual's data were eliminated because her Time 2 questionnaire was incorrectly collated (several pages were missing), and 3 individuals' data were eliminated because their partners also participated in the study (i.e., their data were nonindependent, so we randomly deleted one partner's data). Nine participants' relationships had ended by Time 2, and 78 participants were still involved with their partners. At the end of the Time 2 activities, participants were fully debriefed and thanked for their assistance.

Questionnaires. Willingness to sacrifice was assessed as in Studies 1 and 2, except that participants in Study 5 were asked to list the four most important activities in their lives (rather than three activities as in Studies 1 and 2; Time 1 and Time 2 αs = .84 and .81, respectively). We measured commitment by using items similar to those used in Studies 1–4 and in previous research (Time 1 and Time 2 αs = .90 and .88, respectively). Following procedures used in prior research (Rusbult, 1980, 1983), we attempted to enhance the reliability of our measures of satisfaction, alternatives, and investments by including concrete items, which were designed to illustrate and "teach" participants the meaning of each construct (eight concrete items for each construct; e.g., for satisfaction, "my partner and I want the same things in life"; for each item, 0 = *don't agree at all*, 3 = *agree completely*). Following each set of concrete items, participants completed global measures of satisfaction (Time 1 and Time 2 αs = .92 and .92), alternatives (αs = .67 and .67), and investments (αs = .71 and .73)—items paralleled those used in Studies 1–4. The global items were used in all analyses. As in Studies 3 and 4, we assessed adjustment using a version of the Dyadic Adjustment Scale that is suitable for dating relationships. Again, because commitment and satisfaction were key variables in our work, we dropped items relevant to these constructs to yield a commitment- and satisfaction-purged measure of adjustment (αs = .89 and .92). The Time 1 questionnaires also included a short measure of social desirability (Crowne & Marlowe, 1964; 12 true–false items; α = .53).

Participants' descriptions of their relationships were relatively stable over time—test–retest correlations revealed significant Time 1–Time 2 associations for satisfaction, alternatives, investments, commitment, sacrifice, and adjustment (rs ranged from .56 to .86, all ps < .01). Also, no model variables were correlated with social desirability (rs ranged from −.08 to .15). Our measures appeared to be acceptably reliable, so we calculated an averaged score for each variable.

Results and Discussion

Correlational analyses. Correlations among Time 1 variables are presented in Table 4. Consistent with predictions, (a) Satisfaction, alternatives, and investments were correlated with commitment (Hypothesis 1a); (b) commitment, satisfaction, alternatives, and investments were correlated with willingness to sacrifice (Hypotheses 1 and 1b); and (c) sacrifice and commitment were correlated with both adjustment and persisted–ended status (Hypotheses 2 and 2a). Synchronous analyses performed on the Time 2 data reveal parallel results with one exception; that is, at Time 2, the correlation between sacrifice and adjustment was not significant (r = .19, *ns*).

One goal of Study 5 was to examine links between Time 1 predictors and Time 2 criteria. In general, the results of these analyses parallel the synchronous correlations reported above: (a) Time 1 satisfaction, alternatives, and investments were correlated with Time 2 commitment (rs = .77, −.57, and .32, all ps < .01); (b) Time 1 commitment, satisfaction, alternatives, and investments were correlated with Time 2 sacrifice (rs = .41, .26, −.28, and .20, all ps < .10); and (c) Time 1 commitment was correlated with Time 2 adjustment (r = .42, p < .01). However, Time 1 sacrifice was not significantly correlated with Time 2 adjustment (r = .10, *ns*).

To determine whether Time 1 predictors accounted for a significant change over time in Time 2 criteria, we examined links between Time 1 predictors and Time 2 criteria, controlling for Time 1 levels of each criterion. Unfortunately, correlations between Time 1 and Time 2 measures of each criterion were of sufficient magnitude so that there was inadequate, unexplained variance remaining in Time 2 criteria examination to allow for substantial links with Time 1 predictors; that is, Time 1 measures of each criterion accounted for 35–74% of the variance in Time 2 measures of each criterion. Because there was insufficient change in our criteria to allow for the prediction of change, the analyses reported below focus exclusively on Time 1 data.

Commitment. Consistent with Hypothesis 1a, a simultaneous regression analysis reveals that the investment model variables accounted for 69% of the variance in commitment (see Table 4). Although the investment size coefficient was only marginally significant, given that the zero-order link between investments and commitment was sizable (r = .50), we attribute this weak link to a combination of multicollinearity and low power due to small sample size.

Willingness to sacrifice. Consistent with Hypothesis 1, commitment accounted for 33% of the variance in willingness to sacrifice. Moreover, satisfaction, alternatives, and investments exhibited the predicted associations with sacrifice. Model comparison analyses reveal that satisfaction, alternatives, and investments did not account for significant variance beyond commitment (however, the coefficient for satisfaction was marginal). These results are consistent with the assertion that commitment largely mediates effects on willingness to sacrifice.[7]

Dyadic adjustment and persisted–ended status. Consistent with Hypothesis 2, willingness to sacrifice accounted for 6% of the variance in adjustment and 9% of the variance in persisted–ended status.[8] Consistent with Hypothesis 2a, commitment ex-

[7] To obtain preliminary information relevant to the understanding of how individual-level motives relate to willingness to sacrifice, Time 1 questionnaires included items to measure several types of disposition: (a) general empathic concern, general perspective taking, and partner perspective taking (cf. Davis, 1983; Rusbult et al., 1991); (b) global, social, and physical self-esteem (cf. Coopersmith, 1968; Hoyle, 1991); and (c) psychological femininity and masculinity (cf. S. L. Bem, 1974). Out of 32 possible associations with our four key criteria, only seven effects were significant: Commitment level was positively correlated with partner perspective taking and femininity; willingness to sacrifice was positively correlated with psychological femininity; dyadic adjustment was positively correlated with general perspective taking, partner perspective taking, and psychological femininity; and persisted-ended status was negatively associated with psychological femininity. Thus, the links between individual-level dispositions and willingness to sacrifice were rather weak.

[8] Analyses performed on the persisted–ended variable are relatively conservative. Only nine relationships ended between Times 1 and 2, so estimates for the relationship ended group are based on a small number

Table 4
The Prediction of Commitment Level, Willingness to Sacrifice, Dyadic Adjustment, and Persisted–Ended Status: Study 5—Time 1 Analysis

Criteria	Simple *r* with criterion	Multiple regression results: *β*	% of variance	*F*	*df*
Commitment level					
Model 1					
Satisfaction level	.79**	.61**	69**	60.08**	3, 83
Alternative quality	−.58**	−.24**			
Investment size	.50**	.12[f]			
Willingness to sacrifice[a]					
Model 1					
Commitment level	.57**	.57**	33**	41.61**	1, 85
Model 2					
Commitment level	.57**	.24[f]	37**	12.10**	4, 82
Satisfaction level	.57**	.28[f]			
Alternative quality	−.41**	−.10			
Investment size	.35**	.05			
Dyadic adjustment[b,c]					
Model 1					
Willingness to sacrifice	.24*	.24*	.06*	5.14*	1, 85
Model 2					
Willingness to sacrifice	.24*	−.09	35**	24.82**	2, 84
Commitment level	.58**	.47**			
Persisted–ended status[d,e]					
Model 1					
Willingness to sacrifice	−.30**	−.30**	9**	8.62**	1, 85
Model 2					
Willingness to sacrifice	−.30**	−.02	16**	8.05**	2, 84
Commitment level	−.39**	−.32**			

[a]Comparison of Model 2 to Model 1: $F(3, 82) = 1.85$, $p < .15$. [b]Comparison of Model 2 to Model 1: $F(1, 84) = 37.00$, $p < .01$. [c]Mediation of commitment–adjustment association by willingness to sacrifice: 34% vs. 22%, discrepancy $z = 1.68$, $p < .09$. [d]Comparison of Model 2 to Model 1: $F(1, 84) = 6.88$, $p < .01$. [e]Mediation of commitment–status association by willingness to sacrifice: 15% vs. 10%, discrepancy $z = 0.97$, *ns*. [f]Marginally significant at $p < .10$.
*$p < .05$. **$p < .01$.

hibited the predicted associations with both adjustment and persisted–ended status. Model comparisons reveal that commitment accounted for a significant variance to predict both adjustment and persisted–ended status. However, willingness to sacrifice did not account for a unique variance beyond commitment. Commitment alone accounted for 34% of the variance in adjustment ($r = .58$); when shared variance with sacrifice was taken into consideration, commitment accounted for a marginally reduced 22% of the variance in adjustment ($\beta = .47$; discrepancy $z = 1.68$, $p < .09$). Commitment alone accounted for 15% of the variance in persisted–ended status ($r = -.39$); when a shared variance with sacrifice was taken into consideration, commitment accounted for a nonsignificantly lower 10% of the variance in persisted–ended status ($\beta = -.32$; discrepancy $z = 0.97$, *ns*). Thus, (a) commitment exerted effects on both adjustment and persisted–ended status that extend beyond that which is mediated by willingness to sacrifice; (b) beyond the effects of commitment, willingness to sacrifice did not account for a unique variance in either adjustment or persisted–ended status; and (c) mediation by sacrifice was marginal for adjustment but nonsignificant for persisted–ended status.[9]

Study 6

Studies 1–5 provide good support for hypotheses concerning the correlates of commitment, sacrifice, and couple functioning.

of participants and therefore may be less stable and reliable than would be the case if our sample were larger. Also, the ended group includes two sorts of participants—those who voluntarily ended their relationships and those whose partners did so. Given that Time 1 variables may predict Time 2 status more powerfully for the former than the latter, that our ended group includes both sorts of participant means that the observed effects may be weaker than they would be if the ended group included only those who ended their relationships (cf. Drigotas & Rusbult, 1992).

[9] We performed exploratory analyses of the Time 1 data to examine possible gender differences in our findings. Two-group ANOVAs reveal that women reported greater investments in their relationships than did men, *M*s = 4.88 versus 4.06, $F(1, 85) = 8.36$, $p < .01$. In addition, Time 1 correlational analyses performed separately for women and men reveal that 6 of 6 links with commitment were significant, as were 8 of 8 links with willingness to sacrifice and 8 of 10 links with dyadic adjustment (two correlations were nonsignificant among women). Thus, there do not appear to be substantively meaningful gender differences in the obtained findings.

There is also good support for predictions regarding the role of commitment to mediate effects on sacrifice but only partial support for predictions regarding the role of sacrifice to mediate effects on couple functioning. In an evaluation of associations with couple functioning for Studies 3–5, we examined links with dyadic adjustment, and, when measured, breakup intentions (or actual breakup), or both. Study 6 is a three-wave longitudinal study of marital relationships and complements Studies 1–5 in several respects: (a) As in Study 5, in Study 6 we examined links between earlier predictors and later criteria; (b) as in Study 5, in Study 6 we determined whether model variables exhibit good stability over time; (c) as Study 4 did, Study 6 provides the evidence regarding the validity of our self-report measure of sacrifice; and (d) in contrast to Studies 1–5, in Study 6 we examined the validity of our hypotheses in marital relationships rather than dating relationships.

Method

Participants. Participants were 64 couples (64 women, 64 men) who participated in research activities at Times 3, 4, and 5 of an ongoing longitudinal study of marital processes conducted at UNC (for a detailed description, see Rusbult et al., in press). At Time 3, participants were 32.80 years old on average; the majority were Caucasian (95% Caucasian, 3% African American, 2% Asian American). All participants had completed high school, and 80% had earned bachelor's degrees. Participants' personal annual salary was between $25,000 and $30,000. At Time 3, couples had been married for about 21 months; 38% had one or more children.

Procedure. To recruit participants, we obtained the names of 230 couples who had applied for marriage licenses at the local office of records and deeds. Research assistants contacted couples, determining whether they wished to receive information about the study; interested couples were mailed project descriptions and were subsequently telephoned to determine whether they wished to participate. In the end, 165 couples agreed to participate, for a volunteer rate of 72% (165 out of 230 possible); 123 couples completed Time 1 research activities, for a participation rate of 75% (123 out of 165 volunteers). We included data collection activities once every 6 to 8 months over a 3½-year period. As noted above, Study 6 used data from the first 64 couples to complete research activities at Times 3, 4, and 5 of the project. (We did not begin to measure willingness to sacrifice until Time 3.)

At Times 1, 3, and 5, participants were mailed the UNC Marriage Questionnaire; completed questionnaires were returned in self-addressed, stamped envelopes. At Times 2, 4, and 6, couples participated in laboratory sessions during which they completed the UNC Marriage Questionnaire. (At laboratory sessions, couples also completed additional questionnaires, their interactions were videotaped, and they provided on-line reports of their thoughts and feelings during the interactions. Because these data were not relevant to this research, these procedures are not described.) Partners were instructed to complete their questionnaires independently and were assured that their responses would be confidential. At the end of each research occasion, couples were partially debriefed and thanked for their assistance. At the outset of the study, couples were paid $15 for mailed questionnaires and $25 for laboratory sessions; midway into the project, payment rates were increased to $25 for mailed questionnaires and $40 for laboratory sessions.

Questionnaires. As in Study 4, we measured willingness to sacrifice by asking participants to list the four most important activities in their lives; as in Study 3, participants reported their willingness to forego each activity for the good of their marriage (Time 3–5 αs = .71, .72, and .68). To measure perception of the partner's willingness to sacrifice, at Time 4 participants listed the four most important activities in their partner's life, rating their partner's willingness to forego each activity for the good of their marriage (α = .75). Measures of commitment (αs = .76, .77, and .86), satisfaction (αs = .96, .98, and .98), alternatives (αs = .45, .64, and .52), and investments (αs = .53, .51, and .48) paralleled those from Studies 1–5, modified as appropriate to study marital relationships. As in Studies 1 and 2, reliabilities may have been lower than ideal for alternatives and investments because of the diversity of items tapping these constructs. Adjustment was measured using Spanier's (1976) Dyadic Adjustment Scale. Again, because commitment and satisfaction were key variables in our work, we dropped items relevant to these constructs to yield a commitment- and satisfaction-purged measure of adjustment (αs = .76, .78, and .84).

Participants' descriptions of their marriages were relatively stable over time. Analyses that assessed test–retest correlations for Time 3–Time 4 and Time 4–Time 5 lags reveal significant correlations for satisfaction, alternatives, investments, commitment, sacrifice, and adjustment (rs ranged from .68 to .92; all ps < .01). Because our measures appeared to be acceptably reliable, we calculated an averaged score for each variable.

Results and Discussion

The data obtained from both partners on multiple occasions are not statistically independent. To account for this problem, we performed all analyses using three strategies: (a) analyzing individual-level responses, combining data from Times 3, 4, and 5 and ignoring the nonindependence problem; (b) analyzing individual-level data separately for female and male partners at Times 3, 4, and 5; and (c) analyzing couple-level data separately at Times 3, 4, and 5, using average scores for male and female partners. The three strategies generally yielded consistent results. Unless otherwise indicated, the analyses reported below are based on couple-level data analyzed separately at Times 3, 4, and 5 (this analysis strategy is parsimonious and avoids problems of nonindependence). Meta-analytic techniques were used to report average findings across the three time periods (Rosenthal, 1984).[10]

Correlational analyses. At Time 4, we obtained data to assess the validity of self-reported willingness to sacrifice. Analyses of individual-level data reveal that partners exhibited moderate agreement in describing one another's willingness to sacrifice: Across-partner correlations of own willingness to sacrifice with perception of the partner's willingness to sacrifice demonstrated that wives and husbands exhibited good agreement in their descriptions of the husband's sacrifice (r = .48) and the wife's sacrifice (r = .53; both ps < .01). In addition, across-partner correlations of dyadic adjustment at Times 3, 4, and 5 reveal that partners exhibited good convergence in describing their marriage (rs ranged from .69 to .84, all ps < .01). Although across-partner associations for commitment, own willingness to sacrifice, and the investment model variables were not directly relevant to assess measure validity (these qualities presumably may differ for partners in a given relationship), across-partner correlations reveal that partners reported similar levels of satisfaction, alternatives, investments, commitment, and willingness to sacrifice (rs ranged from .33 to .66; all ps < .05).

[10] We adopted a conservative approach in calculating meta-analytic averages: After translating all statistics into z scores and summing scores across Times 3, 4, and 5, we divided each statistic by the number of values on which the statistic was based rather than dividing by the square root of the number of values (i.e., values were divided by 3.00 rather than 1.73).

Table 5
The Prediction of Commitment Level, Willingness to Sacrifice, and Dyadic Adjustment: Study 6—Meta-Analysis of Times 3, 4, and 5 Couple-Level Analyses

Criteria	Simple r with criterion	Multiple regression results		
		β	% of variance	F
Commitment level				
Model 1				
Satisfaction level	.81**	.73**	66**	28.48**
Alternative quality	−.48**	−.13*		
Investment size	.55**	.16*		
Willingness to sacrifice[a]				
Model 1				
Commitment level	.59**	.59**	35**	13.13**
Model 2				
Commitment level	.59**	.50*	42*	3.79*
Satisfaction level	.54**	.09		
Alternative quality	−.25*	.00		
Investment size	.21*	−.23*		
Dyadic adjustment[b,c]				
Model 1				
Willingness to sacrifice	.63**	.63**	40**	14.31**
Model 2				
Willingness to sacrifice	.63**	.29*	67**	20.19**
Commitment level	.76**	.61**		

[a]Comparison of Model 2 to Model 1: $F = 1.39$, $p < .24$. [b]Comparison of Model 2 to Model 1: $F = 26.73$, $p < .01$. [c]Mediation of commitment–adjustment association by willingness to sacrifice: 58% vs. 37%, discrepancy $z = 2.38$, $p < .02$.
*$p < .05$. **$p < .01$.

Table 5 presents the results of our meta-analytic summary of Times 3, 4, and 5 findings. Consistent with predictions, (a) satisfaction, alternatives, and investments were correlated with commitment (Hypothesis 1a); (b) commitment, satisfaction, alternatives, and investments were correlated with willingness to sacrifice (Hypotheses 1 and 1b); and (c) willingness to sacrifice and commitment level were correlated with dyadic adjustment (Hypotheses 2 and 2a). These synchronous associations among variables were evident at Times 3, 4, and 5.

As in Study 5, one goal of Study 6 was to examine associations between earlier predictors and later criteria (i.e., lagged links for Time 3–Time 4 and Time 4–Time 5). The results of individual-level lagged analyses parallel the synchronous correlations reported above: (a) Earlier measures of satisfaction, alternatives, and investments were correlated with later commitment (average $rs = .67$, $-.39$, and $.46$, all $ps < .05$); (b) earlier commitment, satisfaction, alternatives, and investments were correlated with later sacrifice (average $rs = .49$, $.43$, $-.22$, and $.18$, all $ps < .05$); and (c) earlier sacrifice and commitment were correlated with later adjustment ($rs = .42$ and $.67$, both $ps < .01$).

To determine whether earlier predictors accounted for significant change over time in each criterion, we examined individual-level links between earlier predictors and later criteria, controlling for earlier levels of each criterion. Unfortunately, correlations between earlier and later measures of each criterion in general were of sufficient magnitude that there was inadequate, unexplained variance remaining in later criteria to allow for substantial links with earlier predictors; that is, earlier measures of each criterion accounted for 52–86% of the variance in later measures of each criterion. However, several residualized change analyses were significant: (a) Earlier levels of satisfaction accounted for significant change over time in commitment (i.e., in analyses in which we controlled for earlier levels of commitment, earlier satisfaction was significantly associated with later commitment; $\beta = .31$), (b) earlier commitment accounted for significant change over time in willingness to sacrifice ($\beta = .21$), and (c) earlier commitment accounted for significant change in adjustment ($\beta = .11$). Given that in general there was insufficient change in our criteria to allow for the prediction of change, the analyses reported below focus on synchronous associations between predictors and criteria.

Commitment. The meta-analytic summary of simultaneous regression analyses using couple-level data reveals that, on average, the investment model variables accounted for 66% of the variance in commitment. Consistent with Hypothesis 1a, all three variables accounted for a significant unique variance to predict commitment.

Willingness to sacrifice. Consistent with Hypothesis 1, commitment accounted for an average of 35% of the variance in willingness to sacrifice. Moreover, satisfaction, alternatives, and investments exhibited the predicted simple associations with sacrifice. Model comparisons reveal that satisfaction and alternatives did not account for a significant variance beyond commitment; the coefficient for investments was significant but negative. These results are consistent with the assertion that commitment largely mediates effects on willingness to sacrifice.

Dyadic adjustment. Consistent with Hypothesis 2, willingness to sacrifice accounted for an average of 40% of the variance in dyadic adjustment; consistent with Hypothesis 2a, commitment was positively correlated with adjustment. Model comparisons reveal that commitment accounted for a significant variance beyond willingness to sacrifice. At the same time, sacrifice accounted for

Table 6
The Prediction of Commitment Level, Willingness to Sacrifice, Dyadic Adjustment, and Persistence Versus Termination: Meta-Analysis of Study 1 Through Study 6

Criteria	Simple *r* with criterion	Multiple regression results: β	Multiple regression results: % of variance	Multiple regression results: *F*
Commitment level				
Model 1				
Satisfaction level	.71**	.56**	64**	43.03**
Alternative quality	−.52**	−.25**		
Investment size	.51**	.26**		
Willingness to sacrifice[a]				
Model 1				
Commitment level	.53**	.53**	28**	27.56**
Model 2				
Commitment level	.53**	.37**	32**	7.81**
Satisfaction level	.41**	.08		
Alternative quality	−.30**	−.08		
Investment size	.32**	.07		
Dyadic adjustment[b,c]				
Model 1				
Willingness to sacrifice	.46**	.46**	21**	14.55**
Model 2				
Willingness to sacrifice	.46**	.13*	48**	26.27**
Commitment level	.66**	.55**		
Predicting persistence versus termination (breakup intentions, persisted-ended status)[d,e]				
Model 1				
Willingness to sacrifice	−.40**	−.40**	16**	18.15**
Model 2				
Willingness to sacrifice	−.40**	−.08	28**	18.88**
Commitment level	−.52**	−.44**		

[a]Comparison of Model 2 to Model 1: $F = 1.23$, $p < .11$. [b]Comparison of Model 2 to Model 1: $F = 29.77$, $p < .01$. [c]Mediation of commitment–adjustment association by willingness to sacrifice: 44% vs. 30%, discrepancy $z = 1.65$, $p < .05$. [d]Comparison of Model 2 to Model 1: $F = 15.90$, $p < .01$. [e]Mediation of commitment–persistence association by willingness to sacrifice: 27% vs. 19%, discrepancy $z = 1.18$, $p < .12$.
*$p < .05$. **$p < .01$.

a significant unique variance in adjustment. Commitment alone accounted for 58% of the variance in adjustment (average $r = .76$); when shared variance with sacrifice was taken into consideration, commitment accounted for a significantly reduced 37% of the variance ($\beta = .61$; discrepancy $z = 2.38$, $p < .02$). Thus and consistent with the reasoning underlying Hypothesis 2b, (a) commitment exerted effects on couple functioning that extended beyond that which was mediated by willingness to sacrifice; (b) when the effects of commitment were accounted for, willingness to sacrifice accounted for a significant unique variance in adjustment; and (c) willingness to sacrifice partially mediated the association between commitment and adjustment.[11]

General Discussion

In six studies, we examined the plausibility of a model of willingness to sacrifice that is based on the principles and constructs of interdependence theory (Kelley & Thibaut, 1978; Thibaut & Kelley, 1959). Toward an integration and summary of these findings, Table 6 displays a meta-analysis of the six studies.[12] In the following paragraphs, we review these results, consider some of the broader theoretical and practical implications of such findings, and outline some potentially fruitful avenues for future research.

Determinants of Willingness to Sacrifice

One of two central hypotheses guiding this research predicts that commitment is associated with enhanced willingness to

[11] We performed exploratory analyses to examine possible gender differences and changes over time in our findings. Two-factor within-couple ANOVAs were performed on each measure to examine mean differences in variables as a function of partner gender (women vs. men) and time (Time 3 vs. 4 vs. 5). These analyses reveal that, in comparison to men, women reported stronger commitment, *M*s = 6.33 versus 6.92, $F(1, 153) = 7.51$, $p < .01$, greater dyadic adjustment, *M*s = 123.74 versus 128.72, $F(1, 153) = 6.36$, $p < .01$, and poorer alternatives, *M*s = 3.66 versus 3.12, $F(1, 153) = 7.30$, $p < .01$. There were no significant main effects of time or interactions of time with partner gender. In addition, correlational analyses performed separately for women and men at Times 3, 4, and 5 reveal that 18 of 18 links with commitment were significant, as were 16 of 24 links with sacrifice (five correlations were nonsignificant among women; three were nonsignificant among men), and 22 of 30 links with adjustment (six correlations were nonsignificant among women; 2 were nonsignificant among men). Thus, there do not appear to be substantively meaningful gender differences in the obtained findings.

[12] We adopted a conservative approach in calculating meta-analytic averages: After translating all statistics into *z* scores and summing scores across Studies 1–6, we based our meta-analytic calculations on the number of studies from which relevant data were obtained rather than

sacrifice (Hypothesis 1). Consistent with this hypothesis, the meta-analysis reveals that commitment accounted for 28% of the variance in willingness to sacrifice (see Table 6, Model 1 analyses willingness to sacrifice). In Studies 5 and 6, the lagged associations were also significant; in Study 6, earlier commitment accounted for a significant change over time in willingness to sacrifice. In addition, the studies reveal good support for three more specific predictions: Consistent with Hypothesis 1a, the meta-analysis reveals that commitment was positively associated with satisfaction level and investment size and negatively associated with quality of alternatives (see in Table 6 commitment level). Collectively, these variables account for 64% of the variance in commitment; each variable contributes a unique variance to the prediction. Consistent with Hypothesis 1b, the meta-analysis reveals that willingness to sacrifice was positively associated with satisfaction and investments and negatively associated with alternatives (see in Table 6 willingness to sacrifice). Thus, knowledge of the circumstances of interdependence characterizing a given relationship may help to illuminate both feelings of commitment and willingness to forego immediate self-interest for the good of a relationship.

In addition, the meta-analysis provides good support for Hypothesis 1c, which reveals that satisfaction, alternatives, and investments do not account for a unique variance in sacrifice beyond commitment (see Model 2). These findings are consistent with the claim that commitment is a central motive in ongoing relationships. Congruent with our earlier characterization, commitment appears to operate as an emergent property of dependence, reflecting more than the sum of the conditions out of which it arises: In promotion of prorelationship motivation, commitment accounted for substantial, unique variance above and beyond its components, thereby enhancing willingness to depart from immediate self-interest for the good of a relationship. As such, this research extends previous work, which has documented the role of commitment in the promotion of maintenance acts, such as derogation of alternatives and accommodation (e.g., Johnson & Rusbult, 1989; Rusbult et al., 1991). Moreover, these results stand as a palliative to the lay assumption that satisfaction-relevant constructs, such as love or attraction, "tell the whole story" to account for behavior in close relationships.

Given that willingness to sacrifice is a form of prosocial behavior, the observed link between commitment and sacrifice has several broader implications—one of which centers on the loci of cause for understanding prosocial behavior. In this work, we identify the origins of prosocial motivation in the interdependence relationship proper, assuming that important sources of prosocial motivation may be relationship specific. Parallel forms of relationship-specific, prosocial motivation may operate in other types of interdependent relationship, for example, friendships or collegial relationships. As such, the interdependence orientation extends and complements alternative conceptualizations of prosocial behavior, which tend to emphasize dispositional or normative origins of prosocial motivation (cf. Eisenberg & Fabes, 1991; McClintock & Liebrand, 1988; and Staub, 1978). In this regard, it is interesting that Study 5 reveals little evidence of strong associations between individual-level dispositions and willingness to sacrifice (see Footnote 7), suggesting that the effects of dispositional influences may often be overshadowed by more fundamental properties of interdependent relationships. At the same time, although individuals with different dispositions appear to exhibit roughly equivalent levels of sacrifice, it is possible that their reasons for doing so may differ. For example, committed individuals who are highly individualistic may sacrifice because it is in their long-term self-interest to do so, whereas committed individuals who are highly collectivistic may sacrifice because self-interest and partner interest are merged (cf. Van Lange et al., in press).

A second implication of this work centers on the origins of prosocial motivation. In much of the research on prosocial behavior in close relationships, researchers have examined issues of equity and equality, arguing that adherence to such justice rules promotes couple well-being (e.g., Hatfield, Traupmann, Sprecher, Utne, & Hay, 1985; Sprecher, 1986). This work complements the literature by an examination of prorelationship transformations that are not necessarily based on justice considerations. Of course, adherence to justice rules presumably yields long-term benefits. At the same time, it is interesting that, in terms of the promotion of couple well-being, noncorrespondent dilemmas cannot be solved if partners' concerns derive solely from considerations, such as equity or equality, because the complete absence of sacrifice on the part of both partners is just as "fair" as high levels of mutual sacrifice. Although patterns of mutuality are presumably functional over the course of an extended involvement, if partners were to focus solely on justice goals, such as equality, they might just adopt interaction patterns in which neither partner departs from immediate self-interest. Thus, it seems likely that partners' concerns derive from considerations other than justice per se—considerations that encompass genuine concern for the well-being of a relationship or partner and that may be embodied in such motives as commitment or in processes involving merged identity or communal orientation (cf. Aron & Aron, 1986; Clark & Mills, 1979; Rusbult & Buunk, 1993).

Consequences of Willingness to Sacrifice

A second central hypothesis that guided our work predicts that willingness to sacrifice is associated with enhanced couple functioning (Hypothesis 2). Consistent with this prediction, the meta-analysis reveals that willingness to sacrifice was associated with both dyadic adjustment and persistence–termination, accounting for 21% of the variance in adjustment and 16% of the variance in persistence (see Model 1 dyadic adjustment and persistence versus termination). These findings are compatible with our assertion that the maintenance of a well-functioning relationship entails some willingness to set aside personal interests that conflict with couple well-being. Of course, a complementary interpretation could be advanced: Perhaps as a consequence of relationship deterioration—or as a consequence of declining commitment—individuals become increasingly self-interested and exert less effort toward the goal of relationship maintenance.

This research also provides good support for Hypothesis 2a: The meta-analysis reveals that commitment was associated with

on the square root of the number of relevant studies (e.g., values were divided by 6.00 rather than by 2.45). Accordingly, for Table 6 statistics, we used one-tailed tests of significance.

both adjustment and persistence–termination, accounting for 44% of the variance in adjustment and 27% of the variance in persistence. Also, in Study 6, earlier commitment accounted for significant change over time in adjustment. These findings support our characterization of commitment as a broad motive that promotes a variety of beneficial consequences.

In addition, we obtained some support for Hypothesis 2b, which predicts that willingness to sacrifice partially explains the association between commitment and couple functioning. As outlined in the beginning of this article, Hypothesis 2b is comprised of claims centering on (a) a direct association between commitment and couple functioning (i.e., a link independent of sacrifice), (b) a direct association between willingness to sacrifice and couple functioning (i.e., a link independent of commitment), and (c) a reduction in the variance accounted for by commitment when shared variance with willingness to sacrifice is taken into consideration (i.e., significant partial mediation).

Consistent with Hypothesis 2b, the meta-analysis reveals that, when willingness to sacrifice was included in a model along with commitment, commitment continued to exhibit significant links with both adjustment and persistence (see Table 6 Model 2). Does willingness to sacrifice partially explain the commitment–functioning association? When commitment was examined as a direct predictor of functioning, it accounted for 38% of the variance (44% for adjustment, 27% for persistence); when the simultaneous effects of sacrifice were examined, commitment accounted for 26% of the variance (30% for adjustment, 19% for persistence). The 12% discrepancy in variance accounted for by commitment is explained by shared variance with sacrifice; mediation by sacrifice was significant for adjustment (discrepancy $z = 1.65$, $p < .05$) but not for persistence (discrepancy $z = 1.18$, $p < .12$).

These findings extend previous work on commitment processes by revealing a robust link between commitment and couple functioning, operationally defined as dyadic adjustment (e.g., Rusbult et al., 1991; Simpson, 1987). Moreover, these findings provide evidence regarding the mechanisms that may underlie such an association—evidence that begins to explain how and why strong commitment "pays off." Our findings for adjustment are congruent with the claim that willingness to sacrifice partially explains the link between commitment and functioning; that is, sacrifice may represent one concrete mechanism by which committed individuals are able to develop and sustain healthy, ongoing involvements. Moreover, commitment appears to influence couple functioning through mechanisms other than willingness to sacrifice (i.e., partial mediation by sacrifice). Thus, this work complements the research demonstrating that the association between commitment and functioning is partially mediated by accommodative behavior (Rusbult et al., in press). In the future, researchers could examine multiple maintenance mechanisms in the context of a single study, determining whether, collectively, multiple mechanisms more fully account for the commitment–functioning association.

The meta-analysis also reveals that willingness to sacrifice accounted for some variance in couple functioning that is not shared with commitment: Even when the effects of commitment are taken into consideration, sacrifice continues to exhibit a significant association with adjustment (see Table 6 Model 2 dyadic adjustment). However, the link between sacrifice and persistence is nonsignificant when the effects of commitment are taken into consideration (see Table 6 Model 2 persistence versus termination). Why was the unique effect of willingness to sacrifice significant for adjustment but not persistence? First, sacrifice may not account for unique variance in persistence because commitment itself is such a potent predictor of persistence versus termination. Weak commitment may thoroughly explain decisions to terminate a relationship, whereas in the context of ongoing involvements, there may be opportunities for concrete mechanisms to yield beneficial, adjustment-relevant consequences. For example, in ongoing relationships, repeated evidence of willingness to sacrifice may (a) serve to make a good relationship even better (e.g., to strengthen trust) or (b) "feed back" on commitment (e.g., through increased investment or self-perception), thereby further enhancing both commitment and adjustment. Second, the weaker effects for persistence may have been due to the measurement of this variable because (a) persistence versus termination is a simple dichotomous variable, (b) this variable does not distinguish between voluntary and nonvoluntary termination (i.e., whether the individual or the partner ended the relationship), and (c) the observed rates of termination were relatively low. Any one (or more) of these measurement qualities could interfere with the power of prediction.

Our findings regarding quality of functioning suggest several broader implications, one of which centers on issues of causality. It should be clear that, ultimately, we cannot form confident causal inferences on the basis of the present results. Our interdependence-based interpretation assumes that commitment promotes willingness to sacrifice and that sacrifice in turn strengthens couple functioning (thereby partially mediating the link between commitment and functioning). However, alternative interpretations of our findings might suggest that (a) willingness to sacrifice causes commitment, which in turn causes enhanced functioning; or (b) commitment and sacrifice are concurrent processes that influence couple functioning. As noted earlier, we regard it as plausible that, to some extent, earlier willingness to sacrifice strengthens later commitment (e.g., through increased investment or self-perception). However, the interdependence assumption that circumstances of interdependence (at least partially) account for key motives and behavior is not implausible because a large body of empirical work supports this general theory (for a review, see Rusbult & Van Lange, 1996). Moreover, this account seems plausible because (a) the full complement of results accords reasonably well with this interpretation and (b) this interpretation is congruent with experimental evidence regarding related processes (e.g., Farrell & Rusbult, 1981; Johnson & Rusbult, 1989; Rusbult et al., 1991). More definitive evidence of causal associations remains to be established in experimental research.

More general, however, it would seem that models of simple unidirectional causation are limited in at least two respects. First, key processes in ongoing involvements unfold in the context of a relationship involving two partners. In future work, it is important for researchers to examine how each individual's actions affect the motives and behavior of their partner. For example, an individual's inclination to sacrifice may strengthen their partner's feelings of trust, thereby enhancing their partner's commitment and willingness to engage in parallel departures from self-interest (cf. Holmes & Rempel, 1989; e.g., Wiesel-

quist, Rusbult, Foster, Agnew, & Wright, 1996). Second, key processes in ongoing involvements unfold over extended periods of time. Thus, for example, earlier investments may influence feelings of commitment, which in turn affect willingness to sacrifice, which affects perceived investment, which . . ., and so on, ad infinitum. Such cyclical patterns could have substantial adaptive value in the context of a generally healthy ongoing involvement. Thus, in the final analysis, we suspect that a "cyclical mutual growth" model may best reflect the realities of cause and effect in close, ongoing, interdependent relationships. In future work, it is important for researchers to make progress toward the understanding of such complex cause and effect relationships.

Our findings also have implications for research and intervention. We have suggested that the manner in which close partners react to noncorrespondence may play a role in the maintenance of healthy relationships. To the extent that our general assumption is shared by others in the field, further research on the topic of sacrifice is called for. More generally, note that both traditional and contemporary forms of couples therapy tend to focus on enhancement of couple interaction processes (with some cognitive therapy for good measure; cf. Jacobson & Margolin, 1979; Weiss, 1980). This analysis suggests that improved communication may not be the only recourse (or the ultimate recourse) for distressed couples. Therapeutic interventions might be more effective if, in addition to communicative and cognitive processes, attention is addressed to broader issues of interdependence, such as the origins of noncorrespondence, long-term commitment, and mutual trust (e.g., review areas in which partner's preferences do not correspond and help individuals perceive and acknowledge their partner's departures from immediate self-interest).

Strengths and Limitations of This Research

Before we close, it is important to comment on some of the strengths and limitations of this work. The most important limitation centers on the measurement of willingness to sacrifice. All of our studies included similar self-report measures of willingness to sacrifice. Our measurement technique addressed forms of sacrifice that are rather substantial (i.e., foregoing the most important activities in one's life), tapped sacrifice in a way that highlighted issues of noncorrespondence (i.e., we used a method inspired by forced-choice methodology), and pitted desirable activities against a relationship in ways that may not routinely be experienced in everyday life. In Studies 1, 2, and 5, the self-report instrument emphasized harm to the ongoing relationship; whereas in Studies 3, 4, and 6, the instrument emphasized the sacrificial act rather than relationship harm (see Appendix). In Study 3, we expanded our measurement to include an assessment of both passive and active sacrifice and an examination of relatively more mundane forms of sacrifice. Moreover, Study 4 complemented the self-report methodology with an examination of a direct behavioral measure of sacrifice, willingness to exert physical effort on behalf of the partner. Studies 4 and 6 provided evidence regarding the validity of our self-report techniques: Self-reported willingness to sacrifice was associated with a behavioral measure of sacrifice and partners' reports of the individual's sacrifice. Moreover, our measures were relatively stable over time and were not associated with socially desirable response tendencies.

At the same time, so as to "unconfound" prorelationship orientation from level, frequency, or both of noncorrespondence, in these initial investigations we chose not to examine actual levels of sacrifice or frequencies of sacrifice (with the exception of Study 4, where we controlled for noncorrespondence by using a laboratory-based behavioral measure). Although the degree of measurement diversity we achieved may be suitable in the context of preliminary research regarding a relatively new and unexplored phenomenon, future research clearly would benefit from the development of multiple, diverse, and unobtrusive methods to measure the sacrifice construct. In particular, in future work, it would be useful to (a) tap relatively more mundane, everyday forms of sacrifice and (b) examine both willingness to sacrifice and actual level or frequency of sacrifice (simultaneously controlling for degree of correspondence vs. noncorrespondence).

At least one additional limitation of this work should be noted: Our research provided only preliminary evidence regarding the precise nature of the transformed motivation underlying willingness to sacrifice (see Footnote 4). Although it is imprudent to place too much confidence in what individuals think they would do and feel in a hypothetical, simulated relationship, the Study 3 results demonstrated the plausibility of our assertion that commitment induces prorelationship behavior by (a) an enhancement of desire to promote the broader interests that are occasioned by involvement in a close relationship (e.g., benefit for a close other and maintenance of a desired relationship); (b) reflection of a long-term orientation, thus instigating cycles of reciprocity that could yield direct self-benefit over the long run; and (c) communication of the committed individual's cooperative, long-term orientation. In future work, it is important to obtain more direct and valid evidence regarding the internal events that accompany willingness to forego self-interest.

Some methodological strengths of our research should also be highlighted. First, these studies followed the logic of converging operations: (a) examination of multiple participant populations (i.e., Dutch and U.S. participants, dating relationships and marital relationships), (b) use of multiple methods (i.e., cross-sectional studies, longitudinal studies, and a simulation experiment), and (c) use of multiple modes of measurement (i.e., different methods of self-report and behavioral measurement). Also, the variables examined in this work exhibited high test–retest reliability in Studies 5 and 6, and Studies 3 and 5 revealed that these variables are relatively free of social desirability bias. Moreover, the significant lagged correlations observed in Studies 5 and 6 suggest that the associations among variables do not result from self-report artifacts (e.g., desire to present oneself in a consistent manner), further underscoring the validity of our findings. (Unfortunately, there was typically insufficient change over time to examine more complex lagged effects.) Finally, Studies 4 and 6 provided evidence regarding the validity of our self-report measures of willingness to sacrifice, revealing that such measures are associated with partner reports of one anothers' willingness to sacrifice (Studies 4 and 6) and a behavioral measure of sacrifice (Study 4).

Conclusions

In this research, we identified a potentially important yet insufficiently studied relationship maintenance mechanism. By

demonstrating that the interdependence orientation is a fruitful framework for conceptualizing willingness to sacrifice, this work illuminates our understanding of interdependence theory—a theory which is often (incorrectly) assumed to be a model of primitive self-interest. This work also complements existing research on close relationships with an examination of the facets of interdependence other than positivity of affect (e.g., love and attraction), demonstrating that commitment may be a key motive in account for how and why close partners resolve problems of noncorrespondence. Moreover, by representing willingness to sacrifice as a maintenance mechanism that partially explains the association between commitment and quality of couple functioning, this work provides preliminary evidence relevant to our understanding of how and why some relationships manage to ride out difficult times and prevail, whereas others do not.

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Appendix

Instrument for Measuring Willingness to Sacrifice

On the following four lines, please list the four parts of your life—the four activities in your life—that are most important to you (other than your relationship).

The most important activities in my life (other than my relationship) are:

Most important activity is: _____
Second most important activity is: _____
Third most important activity is: _____
Fourth most important activity is: _____

1. Imagine that it was not possible to engage in Activity 1 and maintain your relationship (impossible for reasons unrelated to your partner's needs or wishes; that is, it wasn't your partner's fault). To what extent would you consider giving up Activity 1?

0	1	2	3	4	5	6	7	8
Definitely would not consider giving up activity			Might consider giving up activity				Would definitely consider giving up activity	

2. Imagine that it was not possible to engage in Activity 2 and maintain your relationship (impossible for reasons unrelated to your partner's needs or wishes; that is, it wasn't your partner's fault). To what extent would you consider giving up Activity 2?

0	1	2	3	4	5	6	7	8
Definitely would not consider giving up activity			Might consider giving up activity				Would definitely consider giving up activity	

3. Imagine that it was not possible to engage in Activity 3 and maintain your relationship (impossible for reasons unrelated to your partner's needs or wishes; that is, it wasn't your partner's fault). To what extent would you consider giving up Activity 3?

0	1	2	3	4	5	6	7	8
Definitely would not consider giving up activity			Might consider giving up activity				Would definitely consider giving up activity	

4. Imagine that it was not possible to engage in Activity 4 and maintain your relationship (impossible for reasons unrelated to your partner's needs or wishes; that is, it wasn't your partner's fault). To what extent would you consider giving up Activity 4?

0	1	2	3	4	5	6	7	8
Definitely would not consider giving up activity			Might consider giving up activity				Would definitely consider giving up activity	

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